Ontario. Legislative Assembly

SESSIONAL PAPERS.

VOL. XXXV.—PART I.

FIRST SESSION, TENTH LEGISLATURE

OF THE

PROVINCE OF ONTARIO.

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SESSION 1903.

TORONTO:
PRINTED AND PUBLISHED BY L. K. CAMERON
Printer to the King's Most Excellent Majesty.
1903.

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ARRANGED ALPHABETICALLY.

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No. 3.. Report of the Commissioner of Crown Lands for the year 1902. Presented to the Legislature, 23rd March, 1903. *Printed.*

No. 4.. Report of the Proceedings of the Inter-Provincial Conference held at the City of Quebec from the 18th to the 20th December, inclusive. Presented to the Legislature, 21st March, 1903. *Printed.*

No. 5.. Report of the Bureau of Mines for the year 1902. Presented to the Legislature, 30th April, 1903. *Printed.*

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No. 6.. Report of the Commissioners for the Queen Victoria Niagara Falls Park for the year 1902. Presented to the Legislature, 5th May, 1903. *Printed.*

No. 7.. Report of the Commissioner of Public Works for the year 1902. Presented to the Legislature, 21st March, 1903. *Printed.*

No. 8.. Report of the Inspectors of Factories for the year 1902. Presented to the Legislature, 3rd June, 1903. *Printed.*

No. 9.. Report relating to the Registration of Births, Marriages and Deaths for the year 1901. Presented to the Legislature, 21st March, 1903. *Printed*

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No. 11.. Loan Corporations Statements for the year 1902. Presented to the Legislature, 19th May, 1903. *Printed.*

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No. 13.. Auditor's Report to the Board of Trustees on Capital and Income Accounts, and Report of the President of the University of Toronto for the year 1902. Presented to the Legislature, 21st March and 8th May, 1903. *Printed.*

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No. 15.. Report of the Ontario Agricultural and Experimental Union for the year 1902. Presented to the Legislature, 2nd June, 1903. *Printed.*

No. 16.. Report of the Fruit Growers' Association of Ontario for the year 1902. Presented to the Legislature, 8th June, 1903. *Printed.*

No. 17.. Report of the Fruit Experiment Stations of Ontario for the year 1902. Presented to the Legislature, 26th May, 1903. *Printed.*

No. 18.. Report of the Inspector of Fumigation Appliances for the year 1902. Presented to the Legislature, 21st March, 1903. *Printed.*

No. 19.. Report of the Entomological Society for the year 1902. Presented to the Legislature, 21st April, 1903. *Printed.*

No. 20.. Report of the Bee-Keepers' Association of Ontario for the year 1902. Presented to the Legislature, 8th June, 1903. *Printed.*

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No. 25.. Report of the Farmer's Institutes of Ontario for the year 1902. Presented to the Legislature, 8th June, 1903. *Printed.*

No. 26.. Report of the Ontario Fairs and Exhibitions for the year 1902. Presented to the Legislature, 21st March, 1903. *Printed.*

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No. 28.. Report of the Bureau of Industries for the year 1902. Presented to the Legislature, 8th June, 1903. *Printed.*

No. 29.. Report of the Bureau of Labour for the year 1902. Presented to the Legislature, 21st March, 1903. *Printed.*

No. 30.. Report of the Ontario Game Commission for the year 1902 Presented to the Legislature, 23rd March, 1903. *Printed.*

No. 31.. Report of the Department of Fisheries for the year 1902. Presented to the Legislature, 21st March, 1903. *Printed.*

No. 32.. Report of the Treasurer *in re* Fidelity Bonds, 1903. Presented to the Legislature, 21st March, 1903. *Printed.*

No. 33.. Report of the Inspector of Division Courts for the year 1902. Presented to the Legislature, 19th May, 1903. *Printed.*

No. 34.. Report of the Inspector of Legal Offices for the year 1902. Presented to the Legislature, 15th May, 1903. *Printed.*

No. 35.. Report of the Inspector of Registry Offices for the year 1902. Presented to the Legislature, 3rd June, 1903. *Printed.*

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No. 36.. Report of the Provincial Board of Health, of Ontario, for the year 1902. Presented to the Legislature, 8th June, 1903. *Printed.*

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No. 38.. Report upon the Lunatic and Idiot Asylums of the Province for the year ending 30th September, 1902. Presented to the Legislature, 21st March, 1903. *Printed.*

No. 39.. Report upon the Prisons and Reformatories of the Province for the year ending 30th September, 1902. Presented to the Legislature, 21st March, 1903. *Printed.*

No. 40.. Report upon the Hospitals and Charities of the Province for the year ending 30th September, 1902. Presented to the Legislature, 21st March, 1903. *Printed.*

No. 41.. Report upon the Ontario Institution for the Education of the Blind, Brantford, for the year ending 30th September, 1903. Presented to the Legislature, 21st March, 1902. *Printed.*

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No. 45.. Report of the Provincial Municipal Auditor for the year 1902. Presented to the Legislature, 21st March, 1903. *Printed.*

No. 46.. Return from the Records of the General Elections to the Legislative Assembly on 29th May, 1902, shewing:—(1) The number of Votes polled for each Candidate in each Electoral District in which there was a contest. (2) The majority whereby each successful Candidate was returned. (3) The total number of Votes polled in each District. (4) The number of Votes remaining Unpolled. (5) The number of Names on the Voters' Lists in each District. (6) The Population of each District as shewn by the last Dominion Census. (7) Similar Statements as to any Elections held since the General Election. (8) A General Summary of Votes cast in each Electoral Division. Presented to the Legislature, 10th March, 1903. *Printed.*

No. 47.. Report of the Librarian on the state of the Library. Presented to the Legislature, 10th March, 1903. *Not Printed.*

No. 48.. Return from the Records on the vote for and against the adoption of the Liquor Act, 1902, shewing:—(1) The number of Polling Subdivisions. (2) The number of votes for and against the adoption of the Act. (3) The total number of Votes polled. (4) The number of votes remaining unpolled. (5) The number of names on the Voters' Lists. (6) The number of Ballot papers sent out to each sub-division. (7) The number of Ballot papers used. (8) The number unused. (9) The number of rejected and spoiled Ballots, and (10) The Population of each Electoral District. Presented to the Legislature, 10th March, 1903. *Printed.*

No. 49.. Report of the Temiskaming Northern Railway Commission for the year 1902. Presented to the Legislature, 21st March, 1903. *Printed.*

No. 50.. Report upon the Sugar Beet Experiments in Ontario for the year 1902. Presented to the Legislature, 12th May, 1903. *Printed.*

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No. 51.. Copy of Commission of Enquiry in the matter of certain charges made by Robert Roswell Gamey, a member of the Legislative Assembly, against James Robert Stratton, a Member of the Executive Council of Ontario, and also a Member of the Legislative

Assembly; and the Report of the Royal Commission appointed, together with the Arguments of Counsel and Evidence taken before the Commission. Presented to the Legislature on the 18th March, and the 4th June, 1903. *Printed.*

No. 52.. Report into the loss and damage caused by the Cyclone which devastated a portion of the Province, in Dundas and Stormont during the year 1902. Presented to the Legislature, 25th March, 1903. *Not printed.*

No. 53.. Copies of Orders-in-Council under the provisions of the Judicature Act commuting fees J. F. Hare, Local Master in Essex, and authorizing certain payment to Judge McHugh, of Essex. Presented to the Legislature, 21st March, 1903. *Not printed.*

No. 54.. Report of the Commercial Work of the Canadian Section of the Imperial Institute, during the year 1902. Presented to the Legislature, 21st March, 1903. *Not printed.*

No. 55.. Copy of Order-in-Council with respect to Regulations under the Succession Duties Act. Presented to the Legislature, 21st March, 1903. *Not printed.*

No. 56. Copies of Orders in-Council *in re* recommendations of the Education Department. Presented to the Legislature, 21st March, 1903. *Not printed.*

No. 57.. Copy of Order-in-Council, respecting Specialist's Courses in the University of Kingston. Presented to the Legislature, 21st March, 1903. *Not printed.*

No. 58.. Copy of Order-in-Council as to agreement with the Canada Publishing Company, Limited; the Copp, Clark Company, Limited, and the W. J. Gage Company, Limited, regarding the Public School Phonic Primer. Presented to the Legislature, 21st March, 1903. *Not printed.*

No. 59.. Copy of Order-in-Council as to agreement with the Hunter Rose Company, Limited, respecting High School Euclid. Presented to the Legislature, 21st March, 1903. *Not printed.*

No. 60.. Copy of Order-in-Council *in re* Regulations governing Public Schools. Presented to the Legislature, 21st, 1903. *Printed.*

No. 61.. Copy of Order-in-Council as to agreement, amending a certain agreement with the George N. Morang Company, Limited, respecting publication of a first book of Geography. Presented to the Legislature, 21st March, 1903. *Not printed.*

No. 62.. Copy of Order-in-Council as to agreements with the George N. Morang Company, Limited, respecting certain school books. Presented to the Legislature, 21st March, 1903. *Not printed.*

No. 63.. Copy of an Order-in-Council *in re* Regulations pertaining to School Libraries. Presented to the Legislature, 21st March, 1903. *Not printed.*

No. 64.. Statement as to the distribution of the Revised and Sessional Statutes, 1898-1902. Presented to the Legislature, 21st March, 1903. *Not printed.*

No. 65.. Report of the Master of Titles in respect to the working of the Land Titles system, in the Province, during the years 1900, 1901 and 1902. Presented to the Legislature, 23rd March, 1903. *Printed.*

No. 66.. Agreement between His Majesty, represented by the Commissioner of Crown Lands, and the Rainy Lake Pulp and Paper Company, Limited. Presented to the Legislature, 19th May, 1903. *Printed.*

No. 67.. Return to an Order of the House of the twenty-third day of April, 1903, for a Return showing account in detail of timber dues paid or owing to the Province in respect of timber cut upon Crown lands in the Townships of Elzevir and Grimsthorpe in the season of 1901-2. Also, shewing amount due to the said municipalities during same period. Presented to the Legislature, 30th March, 1903. Mr. *Pearce. Not printed.*

No. 68.. Report of the Ontario Historical Society, 1901, 1902. Presented to the Legislature, 1st May, 1904. *Not printed.*

No. 69.. By-law No. 16, under the University Act *in re* Faculty of Medicine as to expenditure of $50,000 towards completion of Building. Presented to the Legislature, 6th May, 1903. *Not printed.*

No. 70.. Statement of fees received by the Master of Titles during the years 1900, 1901 and 1902. Presented to the Legislature, 8th May, 1903. *Not printed.*

No. 71.. Return to an Order of the House of the twenty-fourth day of April, 1903, for a Return from the Office of the Master of Titles, shewing 1. Total number of Certificates issued. 2. Number of registrations for the past three years. 3. Fees received in all offices for the past three years. 4. Expenses. 5. Total amount received from the Guarantee Fund in the different offices during the past three years. 6. Total amount received from the Guarantee Fund since the same went into operation. 7. Losses and all other charges against the Guarantee Fund. 8. Total amount standing to the credit of the Guarantee Fund. Presented to the Legislature, 8th May, 1903. Mr. *St. John. Not printed.*

No. 72.. Return to an Order of the House of the fourth day of May, 1903, for a Return shewing the number of young Boys and Girls committed to the County Gaols of the Province during the years 1900, 1901 and 1902 respectively. Presented to the Legislature, 11th May, 1903. Mr. *Hoyle. Not printed.*

No. 73.. Return to an Address of the eighth day of May, 1903, to His Honour the Lieutenant-Governor praying that he will cause to be laid before this House a Return of copies of all Awards made by the Arbitrators between the Dominion and the Provinces, since the date of the last Return. Also, a statement of the Account between Ontario and the Dominion from 31st December, 1892, to 31st December, 1902, as settled by the Counsel for the Province and the Dominion. Together with copies of correspondence between the Minister of Finance of the Dominion and the Provincial Treasurer of Ontario. Presented to the Legislature, 14th May, 1903. Mr. *Matheson. Printed.*

No. 74.. Return to an Order of the House of the Eleventh day of May, 1903, for a Return of copies of all correspondence, agreements and other documents, relating to any application, or agreement between the Government and the Toronto and Niagara Power Company, or any other person, or persons, since the first day of January, 1902, for a grant, or proposed grant of water power from the Niagara or Welland Rivers, for the purpose of generating pneumatic, or other power. Presented to the Legislature, 21st May, 1903. Mr. *Foy. Not printed.*

No. 75.. Return to an Order of the House of the Twentieth day of May, 1903, for a Return of copies of all correspondence between the Department of Public Works, or any officer thereof, and any applicant or applicants, for fishing rights or fishing concessions for commercial purposes, in Lakes Nepigon, Manitou and other Lakes in Ontario, since the first day of May, 1902, together with copies of all agreements for fishing rights, or fishing concessions, since said date. Presented to the Legislature, 28th May, 1903. Mr. *Hendrie Not printed.*

No. 76.. Return to an Order of the House of the Twentieth day of May, 1903, for a Return of copies of all correspondence, papers and documents relating in any way to the appointment of one John McMaster, in or about the month of May, 1902, as overseer of work to be performed on Markstay and Warren Road in Algoma or Nipissing, and to the work done, security given and money advanced or expended in connection therewith. Presented to the Legislature, 28th May, 1903. Mr. *Nesbitt. Not printed.*

No. 77.. Return to an Order of the House of the twenty-seventh day of May, 1903, for a Return shewing the amount of money annually expended by the Province under the " Mines Act," for the encouragement of iron mining. The names of the persons, companies or firms to whom the money has been paid. The amount of iron ore annually mined and smelted in the Province ; shewing as well the amount of foreign ore annually smelted in the Province. Presented to the Legislature, 29th May, 1903. Mr. *Hoyle. Not printed.*

No. 78.. Copy of Order in Council approved by His Honour the Lieutenant Governor, on the eleventh day of June, 1902, respecting a certain

Agreement with the Sturgeon Falls Pulp Company, Limited. Presented to the Legislature, 1st June, 1903. *Printed.*

No. 79.. Copy of an Agreement bearing date of the seventh day of May, 1903, by and between the Sturgeon Falls Pulp Company, Limited, and the Imperial Paper Mills of Canada, Limited. Presented to the Legislature, 1st June, 1903. *Printed.*

No. 80.. Return to an Order of the House of the fourth day of June, 1903, for a Return of copies of all correspondence between the Attorney-General or any other Member of the Government and the County Council of Frontenac, with reference to a Resolution of the County Council asking for the dismissal of the Sheriff of the County; together with copies of all correspondence between the Government, or any Member thereof, and James Dunkin Thompson, Registrar of the County of Frontenac, and Thomas Dawson, Sheriff of the said County, as to the appointment of a Returning Officer for the County, at the last Provincial Election. Presented to the Legislature, 16th June, 1903. Mr. *Gallagher. Not printed.*

No. 81.. Return to an Order of the House of the twenty-eighth day of May, 1903, for a Return of Copies of all correspondence between any Member of the Government and James A. Browning of Bellingham, Ontario, relating to the imprisonment of the latter, on a charge of obtaining property on false pretences. Presented to the Legislature, 26th June, 1903. Mr. *Smyth. Not printed.*

PUBLIC ACCOUNTS

OF THE

PROVINCE OF ONTARIO

FOR THE

YEAR ENDED 31ST DECEMBER,

1902.

TORONTO:
PRINTED AND PUBLISHED BY L. K. CAMERON.
Printer to the King's Most Excellent Majesty.
1903.

WARWICK BRO'S & RUTTER, Printers.
TORONTO.

To His Honour the Honourable SIR OLIVER MOWAT, K.C.M.G.,
Lieutenant Governor of Ontario.

MAY IT PLEASE YOUR HONOUR :

The undersigned has the honour to present to your Honour the PUBLIC ACCOUNTS of the Province of Ontario for the year ended 31st December, 1902.

Respectfully submitted,

GEO. W. ROSS,
Treasurer.

TREASURY DEPARTMENT, ONTARIO,
TORONTO, February 15th, 1903.

PROVINCIAL AUDITOR'S REPORT.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, February 15th, 1903

To HON. G. W. ROSS,
Treasurer of Ontario:

I have the honour to present to you the Public Accounts for the year ended 31st December, 1902.

For the information of the Legislative Assembly, I beg to report the following over expenditures of appropriations as granted by the Supply Bill:

OVER EXPENDITURES AUTHORIZED BY THE TREASURY BOARD.

49 Vict., Cap. 4, Sec. 20.

Public Buildings—Cobourg Asylum.....$243 75

TORONTO, June 23, 1902.

Re Furniture.—C.A.

SIR,—I beg to report that the amount placed in the Supplementary Estimates to cover the expenditure for furnishings and furniture at Cobourg Asylum is exhausted. There remains unpaid the accounts of the Valley City Seating Company, $180.00; The Charles Rogers & Sons Co., $54.25, and the John Kay Son Co., $9.50; total, $243.75, all of which is properly chargeable to capital appropriation.

I beg to recommend therefore that authority be given under R.S.O. Cap. 23, Sec. 20, for the issue of a Treasury Board warrant for the sum of $243.75, in order that the enclosed accounts can be paid.

Your obedient servant,

R. CHRISTIE,
Inspector.

Approved

J. R. STRATTON,
Provincial Secretary.

C. H. SPROULE,
Provincial Auditor.

Copy of a Minute of the Treasury Board, dated the 26th day of August, A. D. 1902:

Upon consideration of the report of Mr. Inspector Christie, approved by the Honourable the Provincial Secretary, dated the 23rd day of June, A. D. 1902, the Treasury Board doth hereby, pursuant to the provisions of section 20, chapter 23, R.S.O., 1897, authorize the issue of a warrant for the sum of two hundred and forty-three dollars and seventy-five cents ($243.75) in favour of the Honourable the Treasurer, for the payment of certain accounts for furnishings and furniture for the Cobourg Asylum, the appropriation for said service having become exhausted.

Certified.

J. LONSDALE CAPREOL,
Clerk Treasury Board.

Education—Superannuated Teachers..... 2,969 92

TORONTO, July 4th, 1902.

The undersigned respectfully reports to His Honour the Lieutenant-Governor in Council that the amount appropriated for the sub-service of "Superannuated Teachers" is exhausted with the exception of a small balance.

As it is necessary that the annual allowance of certain worn-out teachers still unpaid should be forwarded without delay, the undersigned respectfully recommends that authority be given under the Act R.S.O. 1897, cap 23, sec. 20, for appropriating the further sum of $2,969.92 to meet the payment of the pensions as set forth in the accompanying certificates and statement.

R. HARCOURT,
Minister of Education.

Copy of a Minute of the Treasury Board, dated the 26th August, 1902:

Upon consideration of the report of the Honourable the Minister of Education, dated the 4th day of July, A.D. 1902, the Treasury Board doth hereby pursuant to the provisions of section 20 of chapter 23 R.S.O. 1897, authorize the issue of a warrant for the sum of two thousand nine hundred and sixty-nine dollars and ninety-two cents ($2,969.92) in favour of the Honourable the Treas-

urer, for the payment of pensions to Superannuated Teachers as per accompanying certificates, the appropriation for said sub-service having become exhausted.

Certified,

J. LONSDALE CAPREOL,

Clerk Treasury Board.

Public Buildings: Mercer Reformatory..... 242 20

DEPARTMENT OF PUBLIC WORKS, ONTARIO.

TORONTO, August 26th, 1902.

The undersigned begs to report to His Honour the Lieutenant Governor in Council:

That the Capital Account of the Andrew Mercer Reformatory is exhausted and the following accounts are unpaid:

Angus Macpherson	$ 11 87
The James Robertson Co	230 33
	$242 20

The undersigned therefore respectfully recommends that authority be given under the Act R.S.O. 1897, Cap. 23, sec. 20 for the payment of said accounts amounting to the sum of two hundred and forty-two dollars and twenty cents.

(Sgd.) A. W. CAMPBELL,

Assistant Commissioner.

Copy of a Minute of the Treasury Board, dated 5th September, 1902:

Upon consideration of the report of the Assistant Commissioner of Public Works, dated the 26th day of August, A. D., 1902, the Treasury Board doth hereby, pursuant to the provisions of section 20, cap. 23, R.S.O., 1897, authorize the issue of a warrant for the sum of two hundred and forty-two dollars and twenty cents ($242.20) in favour of the Honourable the Treasurer for the payment of the following accounts in connection with the Andrew Mercer Ontario

Reformatory for Females, the appropriation (Capital Account) for said institution having become exhausted.

Angus Macpherson (plumbing)	$ 11 87
The James Robertson Co'y, Limited, (plumbing supplies	230 33
	$242 20

Certified,

J. LONSDALE CAPRÉOL,

Clerk, Treasury Board.

Colonization Roads 20,000 00

Copy of an Order-in-Council approved by His Honour the Lieutenant-Governor, the 20th day of October, A. D. 1902:

The Committee of Council have had under consideration the report of the Honourable the Commissioner of Public Works, dated 13th October, 1902, wherein he states that in consequence of the unforseen large influx of settlers in the Temiskaming District, the construction of a number of colonization roads was immediately and urgently required for the public good, thereby causing an expenditure for which there is no legislative provision. In view of the urgent necessity existing for such expenditure, the Commissioner recommends that, pursuant to the provisions of subsection 2 of section 9 of cap. 23, R. S. O., 1897, a special warrant for the sum of twenty thousand dollars ($20,000) be issued in favour of the Honourable the Treasurer to be placed by him in a special account against which cheques may be issued from time to time in the usual form as they may be required.

The Committee concur in the recommendation of the Commissioner and advise that the same be acted on.

Certified,

J. LONSDALE CAPRÉOL,

Asst. Clerk, Executive Council.

Refunds: Crown Lands 3,000 00

TORONTO, 27th October, 1902.

To His Honour
The Lieutenant Governor in Council,—

The undersigned begs respectfully to report that the appropriation for refunds by the Department of Crown Lands, amounting to $18,500 is approaching exhaustion, the balance at present date amounting to $2,600 which is insufficient to meet repayments now requiring to be met. As it is expedient to provide the necessary funds to cover these repayments, the undersigned respectfully recommends that authority be given under R.S.O., 1897, chap. 23 section 20, for appropriating the sum of $3,000 for this purpose.

(Sgd.) E. J. DAVIS,
Commissioner.

Copy of a Minute of the Treasury Board, dated the 29th day of October, A. D. 1902:

Upon consideration of the report of the Honourable the Commissioner of Crown Lands, dated the 27th day of October, A. D. 1902, the Treasury Board doth hereby, pursuant to the provisions of section 20, chap. 23, R.S.O., 1897, authorize the issue of a warrant for the sum of three thousand dollars ($3,000) in favour of the Honourable the Treasurer, to enable him to make certain payments in connection with refunds by the Crown Lands Department, the balance at the credit of the appropriation for said service being insufficient to meet such refunds.

Certified,
J. LONSDALE CAPRÉOL,
Clerk, Treasury Board.

Public Buildings: Deaf and Dumb Institution 86 20

DEPARTMENT OF PUBLIC WORKS, ONTARIO.

TORONTO, November 5th, 1902.

The undersigned begs to report to His Honour the Lieutenant-Governor in Council:

The Provincial Auditor reports the capital appropriation of the Belleville Institution for the Deaf and Dumb as exhausted,

and the account of Mr. Thos. Hanley, hereto attached amounting to $86.20 as yet unpaid.

The undersigned therefore respectfully recommends that authority be given under chap. 23, sec. 20 R. S. O., 1897, for the issue of a warrant for the said deficit, $86.20.

(Sgd.) G. W. ROSS,
For Commissioner.

Copy of a Minute of the Treasury Board dated 17th November, A. D. 1902:

Upon consideration of the report of the Honourable G. W. Ross, acting for the Commissioner of Public Works, dated the 5th day November, 1902, the Treasury Board doth hereby pursuant to the provisions of section 20 cap. 23, R. S. O., 1897, authorize the issue of a warrant for the sum of eighty-six dollars and twenty cents ($86.20) in favour of Thomas Hanley for certain work and materials therefor, in connection with the Institution for the Deaf and Dumb Belleville, the appropriation for said Institution (capital account) having become exhausted.

Certified,
J. LONSDALE CAPRÉOL,
Clerk, Treasury Board.

REPAIRS AND MAINTENANCE: Education Buildings 394.45

TORONTO, Nov. 14th, 1902.

The undersigned begs to report to His Honour the Lieutenant-Governor in Council:

That the Legislative appropriation for Maintenance and Repairs of the Education Department and the Toronto Normal and Model School Buildings and Grounds is exhausted, and as it is necessary that provision be made for the payment of certain accounts now on hand, and for the wages of carpenter and others for the present and following month, he respectfully recommends that authority be given under the Act R. S. O. 1897, chap. 23, sec. 20 for the issue of a warrant for the sum of $394.45 to cover the deficiency set forth in the accompanying Schedule.

(Sgd.) R. HARCOURT.
Minister of Education.

Copy of a Minute of the Treasury Board, dated the 17th day of November, A. D. 1902 :

Upon consideration of the report of the Honourable the Minister of Education, dated the 14th day of November, A. D. 1902. the Treasury Board doth hereby pursuant to the provisions of section 20, cap. 23, R. S. O. 1897, authorize the issue of a warrant for the sum of three hundred and ninety-four dollars and forty-five cents ($394.45) in favour of the Honourable the Treasurer, to enable him to make provision for the payment of certain accounts now on hand, and for the wages of carpenter and others for the present and following month, the appropriation for Maintenance and Repairs of the Education Department and the Toronto Normal and Model School Building and Grounds having become exhausted.

Certified,

J. LONSDALE CAPREOL,
Clerk, Treasury Board.

Public Buildings : Mercer Reformatory 1,800.00

TORONTO, 2nd December, 1902.

In accordance with the report of Mr. Inspector Noxon attached hereto, the undersigned begs respectfully to recommend the issue of a Treasury Board warrant for the sum of eighteen hundred dollars ($1,800) for chapel alterations and improved school accommodation at the Andrew Mercer Ontario Reformatory for Women and Industrial Refuge for Girls.

(Sgd.) J. R. STRATTON,
Provincial Secretary.

To HIS HONOUR,
The Lieutenant-Governor in Council.

Copy of a Minute of the Treasury Board, dated 2nd December, A.D. 1902 :

Upon consideration of the report of the Honourable the Provincial Secretary, dated the 2nd day of December, A.D. 1902, the Treasury Board doth hereby pursuant to the provisions of section 20, chapter 23, R.S.O. 1897, authorise the issue of a warrant for the sum of one thousand eight hundred dollars ($1,800) in favour of the Honourable the Treasurer to meet payments in connection with the chapel alterations and school accommodation at the

Andrew Mercer Ontario Reformatory for Women, and the Industrial Refuge for Girls, the appropriation for said service having become exhausted.

Certified,

J. LONSDALE CAPREOL,

Clerk, Treasury Board.

Civil Government: Public Works Department 2,283 34

DEPARTMENT OF PUBLIC WORKS, ONTARIO.

TORONTO, December 19th, 1902.

The undersigned begs to report to His Honour the Lieutenant-Governor in Council:

That the appropriation for salaries and expenses Public Works Department is nearly exhausted and that the following pay lists remain unpaid:—

Pay list, Departmental for December	$2,008 00
Pay list additional draughtsmen, etc	275 34
	$2,283 34

The undersigned therefore respectfully recommends that authority be given under Act R.S.O. cap. 23, sec. 20 for the issue of a warrant to cover the said pay lists.

(Sgd.) F. R. LATCHFORD,

Commissioner of Public Works.

Copy of a Minute of the Treasury Board, dated the 19th day of December, 1902:

Upon consideration of the report of the Honourable the Commissioner of Public Works, dated the 19th day of December, A.D. 1902, the Treasury Board doth hereby pursuant to the provisions of section 20, cap. 23, R.S.O. 1897, authorize the issue of a warrant for the sum of two thousand two hundred and eighty-three dollars and thirty-four cents ($2,283.34) in favour of the Honourable the Treasurer, to cover pay lists for salaries and expenses of the Public Works Department, the appropriation for said service having become exhausted.

Certified

J. LONSDALE CAPREOL,

Clerk, Treasury Board.

Colonization Roads 5,000 00

TORONTO, 23rd December, 1902.

The undersigned has had under consideration the report of Mr. Henry Smith, Superintendent of Colonization Roads, wherein he states that the appropriation for Colonization Roads under the supply bill is exhausted, and that there are accounts to the extent of about $5,000 yet unpaid. The public interest and the urgent requirements of the public service render it necessary that the said accounts should be paid forthwith, and the undersigned therefore respectfully recommends that, for the purpose expressed, a warrant for the sum of $5,000 be issued in favour of the Honourable the Treasurer.

(Sgd.) F. R. LATCHFORD,
Commissioner of Public Works.

———

Copy of a Minute of the Treasury Board, dated the 23rd day of December. A.D. 1902:

Upon consideration of the report of the Honourable the Commissioner of Public Works, dated the 23rd day of December, A.D. 1902, the Treasury Board doth hereby, pursuant to the provisions of section 20, cap. 23, R.S.O., 1897, authorize the issue of a warrant for the sum of five thousand dollars ($5,000) in favour of the Honourable the Treasurer, to enable him to meet the payment of certain accounts in connection with "Colonization Roads," the appropriation for said service having become exhausted.

Certified,
J. LONSDALE CAPRÉOL,
Clerk, Treasury Board.

———

Education—Public Libraries 1,119 03

TORONTO, 12th December, 1902.

The undersigned respectfully reports to His Honour the Lieutenant-Governor in Council:

That the appropriation voted by the Legislature of the Province for Public Libraries, Art Schools, Literary and Scientific Societies for current year is exhausted and there are several grants still due Public Libraries.

As it is necessary that these grants should be paid before the close of the year, the undersigned respectfully recommends that authority be given under the Act R.S.O., 1897, cap. 23, sec. 20, for appropriating the further sum of $1,119.03 to provide for the deficiency as per accompanying certificate and statement.

(Sgd.) R. HARCOURT,
Minister of Education.

Copy of a Minute of the Treasury Board, dated the 24th day of December, A.D. 1902:

Upon consideration of the report of the Honourable the Minister of Education, dated the 12th day of December, A.D. 1902, the Treasury Board doth hereby, pursuant to the provisions of section 20, cap. 23, R.S.O., 1897, authorize the issue of a warrant for the sum of one thousand one hundred and nineteen dollars and three cents ($1,119.03) in favour of the Honourable the Treasurer, for the payment of certain grants due to Public Libraries, the appropriation for "Public Libraries, Art Schools, Literary and Scientific Societies" having become exhausted.

Certified,
J. LONSDALE CAPREOL,
Clerk, Treasury Board.

Repairs and Maintenance	New Parliament Buildings.....	2,915.49
do.	Old Parliament Buildings	84 60
do	Education Buildings.....	965.00
do.	School Practical Science.....	1,077.02
do.	Osgoode Hall.....	805.12

DEPARTMENT OF PUBLIC WORKS, ONTARIO,
TORONTO, 23rd DECEMBER, 1902.

The undersigned begs to report to His Honour the Lieutenant Governor in Council:

That the maintenance appropriations for the following services are exhausted. and that balance of accounts for fuel supply for the season 1902-03 amounting to $5,847.23 remain unpaid. The undersigned therefore respectfully recommends that authority be

given under Act R. S. O., cap. 23, sec. 20, for an issue of a warrant in payment of same. viz :

WM. McGILL & CO.

New Parliament Buildings	$2,915 49
School of Practical Science	1,077 02
Education Department	910 05
Old Parliament Buildings	62 10
Osgoode Hall	805 12
	$5,769 78

JAS H. MILNES & CO.

Old Parliament Buildings	$22 50	
Education Department	54 95	
		77 45
		$5,847 23

(Sgd) F. R. LATCHFORD,
Commissioner.

Copy of a Minute of the Treasury Board dated 31st December, A. D. 1902 :

Upon consideration of the report of the Honourable, the Commissioner of Public Works, dated the 23rd day of December, A. D. 1902, the Treasury Board doth hereby pursuant to the provisions of section 20 cap. 23, R. S. O., 1897, authorize the issue of a warrant for the sum of five thousand, eight hundred and forty-seven dollars and twenty-three cents ($5,847.23) in favour of the Honourable the Treasurer, for the payment of the following accounts for fuel for the season 1902-03 the maintenance appropriations for the following services having become exhausted.

WM. McGILL & CO.

New Parliament buildings	$2.915 49
School of Practical Science	1,077 02
Education Department	910 05
Old Parliament Buildings	62 10
Osgoode Hall	805 12

JAS. H MILNES & CO.

Old Parliament Buildings	22 50
Education Department	54 95
	$5,847 23

Certified,

J. LONSDALE CAPRÉOL
Clerk, Treasury Board.

Repairs and Maintenance, Education Buildings..... 371 32

TORONTO, DECEMBER 16th, 1902.

The undersigned respectfully reports to His Honour the Lieutenant-Governor in Council:

That the sum appropriated for the "Maintenance of the Toronto Normal School Buildings and Grounds" is exhausted and a few accounts for supplies, services, etc. still remain unpaid. As it is necessary that payment should be made within the year, the undersigned respectfully recommends that a further sum of $371.32 be granted under the Act R. S. O. 1897 cap. 23, sec. 20 to meet the payment of the accounts named in the accompanying certificates, Nos. 1556 and 1557.

(Sgd.) R. HARCOURT,
Minister of Education.

Copy of a Minute of the Treasury Board, dated the 24th day of December, A. D. 1902:

Upon consideration of the report of the Honourable the Minister of Education, dated the 16th day of December, A. D. 1902, the Treasury board doth hereby, pursuant to the provisions of section 20 cap. 23, R. S. O. 1897, authorize the issue of a warrant for the sum of three hundred and seventy-one dollars and thirty-two cents, ($371.32) in favour of the Honourable the Treasurer, to enable him to pay certain accounts for supplies, services, etc., chargeable to the appropriation for "Maintenance of the Toronto Normal School Buildings and Grounds, which has become exhausted.

Certified,

J. LONSDALE CAPRÉOL,
Clerk, Treasury Board.

Education: Public and Separate Schools 7,943.34

TORONTO, Dec. 16th, 1902.

The undersigned respectfully reports to His Honour the Lieutenant-Governor in Council:

That the Legislative appropriation voted for "Public and Separate School Education," amounting to $481,949.87 (vote 18, pages 15-16 of the Estimates for 1902) is exhausted, and, owing chiefly to an overdraft of $8,347.60 in the sub-service of "Departmental Examinations," sufficient funds are not left in the other sub-services to meet the payment of all the necessary grants for "Public School Inspection," "District Schools," "Teachers' Associations," etc. for the year.

The undersigned therefore respectfully recommends that authority be given under the Act, R. S. O. 1897, cap. 23, sec. 20, for appropriating a further sum of $7,943.34 to meet the payments of grants, services, and accounts enumerated in the accompanying certificates and statements.

R. HARCOURT,

Minister of Education.

———

Copy of an Order-in-Council approved by His Honour the Lieutenant-Governor, the 31st day of December, A. D. 1902:

Upon consideration of a Minute of the Treasury Board dated 29th December, 1902, the Committee of Council advise that a warrant for the sum of seven thousand nine hundred and forty-three dollars and thirty-four cents ($7,943.34) be issued in favour of the Honourable the Treasurer for the payment of certain grants, services and accounts in connection with Public and Separate School Education, the appropriation for said service having become exhausted.

Certified,

J. LONSDALE CAPRÉOL,

Asst. Clerk, Executive Council.

Public Institution Maintenance: Reformatory for Boys ... 2,452 92

TORONTO, 23rd December, 1902.

SIR,—I beg to report that the appropriation for the maintenance of the Ontario Reformatory for Boys, Penetanguishene, for the current year has, owing to the enhanced cost of nearly all classes of supplies, and the exceptional replenishment of bedding and clothing to permit necessary changes, been found insufficient and the sum of $2,452.92 is required to pay the December accounts.

I would therefore recommend that authority be given under the Act R. S. O., 1897, chap. 23, sec. 20, for payment of the above amount.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) JAMES NOXON,
Inspector.

C. H. SPROULE,
Provincial Auditor, Toronto.

Approved
J. R. STRATTON.

Copy of a Minute of the Treasury board, dated the 24th day of December, A. D. 1902:

Upon consideration of the report of the Honourable the Provincial Secretary, dated the 23rd day of December, A.D. 1902, the Treasury Board doth hereby pursuant to the provisions of section 20, chap. 23, R. S. O., 1897, authorize the issue of a warrant for the sum of two thousand four hundred and fifty-two dollars and ninety-two cents ($2,452.92) in favour of the Honourable the Treasurer, for the payment of accounts for the month of December, in connection with the maintenance of the Ontario Reformatory for Boys, the appropriation for said Institution having become exhausted.

Certified,

J. LONSDALE CAPREOL,
Clerk, Treasury Board.

Public Institutions Maintenance: Mercer Reformatory.... 4,371 00

TORONTO, 18th December, 1902.

SIR,—I beg to report that the appropriation for maintenance of the Andrew Mercer Ontario Reformatory for Females, for the current year has, owing to enhanced cost of supplies, increase in number of inmates, and additional charges from having numbers of workmen on the premises engaged in making repairs- and alter ations, proved insufficient, the sum of $4,371 is required to pay the remaining unpaid accounts for the year.

I would therefore respectfully recommend that authority be given under Act R.S.O., 1897, cap. 23, sec. 20, for the payment of accounts in the above amount.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) JAMES NOXON,
Inspector.

Approved,

(Sgd.) J. R. STRATTON.

Copy of a Minute of the Treasury Board, dated the 24th day of December, A.D. 1902:

Upon consideration of the report of the Honourable the Provincial Secretary, dated the 18th day of December, A.D. 1902, the Treasury Board doth hereby, pursuant to the provisions of section 20, cap. 23, R.S.O., 1897, authorize the issue of a warrant for the sum of four thousand three hundred and seventy-one dollars ($4,371) in favour of the Honourable the Treasurer, for the payment of the unpaid accounts for the year in connection with the Andrew Mercer Ontario Reformatory for Females, the appropriation for the maintenance of said Institution having become exhausted.

Certified,

J. LONSDALE CAPRÉOL,
Clerk, Treasury Board.

Public Institutions Maintenance—Orillia Lunitic Asylum . 2,964 07

TORONTO, 23rd December, 1902.

SIR,—I beg to report that the appropriation for the maintenance of the Asylum for Idiots, Orillia, for the current year has, owing to the increased cost of fuel, and of nearly the entire list of commodities consumed, proved, with the most careful economy, insufficient, and the sum of $2,964.07 is required to pay the December accounts.

I would therefore recommend that authority be given under the Act R.S.O., 1897, cap. 23, sec. 20, for payment of the above amount.

I have the honour to be, Sir.

Your obedient servant,

(Sgd) JAMES NOXON,
Inspector.

Approved,
(Sgd.) J. R. STRATTON.

Copy of a Minute of the Treasury Board, dated the 24th day December, A D. 1902 :

Upon consideration of the report of the Honourable the Provincial Secretary, dated the 23rd day of December, A.D. 1902, the Treasury Board doth hereby, pursuant to the provisions of section 20, cap. 23, R.O.S., 1897, authorize the issue of a warrant in favour of the Honourable the Treasurer for the sum of two thousand nine hundred and sixty-four dollars and seven cents ($2,964.07) for the payment of certain accounts for the month of December, in connection with the maintenance of the Asylum for Idiots, Orillia, the appropriation for said service having become exhausted.

Certified,
J. LONSDALE CAPREOL,
Clerk, Treasury Board.

Public Works: Mississagua River Bridge 1,139 42

DEPARTMENT OF PUBLIC WORKS, ONTARIO.

TORONTO, December 2, 1902.

The undersigned begs to report to His Honour the Lieutenant-Governor in Council :

That the appropriation for the construction of piers under the steel bridge across the Mississagua River is exhausted, and there remain pay lists and accounts unpaid as follows:

Secretary of Public Works for			
Balance on October Pay List	$ 87 50		
" November "	510 75		
		598 25	
J. F. Boyd, balance		59 69	
Accounts:			
Mun. of Thessalon	Use of Crusher	$ 36 00	
Jas. Forrest	Pine Plank	1 25	
H. Sargeant	Nails, tools	4 15	
Brooks Trans Bus & Dray Line	Teams	1 00	
Arnill Bros.	Nails, rope	7 95	
John Warnock	Timber	4 20	
Bridge Bros.	Tools, etc.	15 33	
Stewart & Donaldson	Teaming	30 00	
E. Lizotte	Blacksmithing	17 40	
H. W. Ross	Hire of Screws	15 00	
Moore & Brown	Cement, etc.	229 68	
Thos. Plante, for freight:			
Express Co.	95		
C. P. Railway	33 96		
		34 91	
			396 87
Good Roads Mach. Co.	Machine	30 00	
Mun. of Thessalon—C. P. Ry.	Freight	2 15	
James J. Harris	Plank	52 46	84 61
In all the sum of			$1,139 42

The undersigned therefore respectfully recommends that authority be given under cap. 23, sec. 20, R.S.O., 1897, for the issue of a warrant to cover the said amount.

(Sgd.) F. R. LATCHFORD,
Commissioner.

Copy of an Order-in-Council approved by his Honour the Lieutenant-Governor, the 31st day of December, A. D. 1902:

Upon consideration of a Minute of the Treasury Board, dated 29th December, 1902, the Committee of Council advise that a war-

rant for the sum of one thousand, one hundred and thirty-nine dollars and forty-two cents ($1,139.42) be issued in favour of the Honourable the Treasurer, for the payment of pay lists and accounts in connection with the construction of piers under the steel bridge across the Mississagua River, the appropriation for said work having become exhausted.

Certified,

J. LONSDALE CAPRÉOL,

Asst. Clerk, Executive Council.

Legislation—Stationery, Printing and Binding 6,900 00

TORONTO, December 30th, 1903.

The undersigned respectfully reports to His Honour the Lieutenant-Governor in Council:

That the appropriation for Legislative Printing has become exhausted, owing to large amount of Sessional Printing.

The undersigned therefore respectfully requests that authority be given the Honourable the Provincial Treasurer, under the Act, R. S. O., 1897, cap. 23, sec. 20, to pay $6,900 on account of Riordon Paper Mills, Limited.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) L. K. CAMERON,

King's Printer.

Approved and recommended,

(Sgd.) G. W. ROSS,

Provincial Treasurer.

C. H. SPROULE, Esq.,

Provincial Auditor.

Copy of a Minute of the Treasury Board, dated the 6th day of January, A.D. 1903.

Upon consideration of the report of the King's Printer approved by the Honourable the Treasurer, dated the 30th day of December, A.D. 1902, the Treasury Board doth hereby pursuant to the provisions of section 20, cap. 23, R. S. O. 1897, authorize the issue of a warrant for the sum of six thousand nine hundred dol-

lars ($6,900) in favour of "The Riordon Paper Mills, Limited" for printing paper the appropriation for said service owing to the large amount of Sessional printing having become exhausted :

Certified,
J. LONSDALE CAPRÉOL,
Clerk, Treasury Board.

Agriculture..... 5,662 21

TORONTO, December 31st, 1902.

DEAR SIR,—Because of the unexpected demands for inspection in connection with the San Jose Scale and the large growth of Farmers Institute work during the year, and because revenues from the Eastern Dairy School and some of the Departments of the College cannot be turned in for some days yet, the vote for agriculture has been exhausted. The following accounts should be paid at once. I therefore respectfully request that you apply for a Treasury Board Order for the payment of the same.

V. 4107	G. C. Creelman, Accountable Travelling expenses of Dairy Directors.	$	200 00
4108	A. P. Westervelt, Eastern Winter Fair Ottawa		3,000 00
4125	San Jose Scale accounts		339 58
4131	Experimental Fruit Stations		109 95
4133	Experimental Fruit Stations		80 05
4135	Accounts Winter Fair Building Guelph		219 03
4177	Prince of Wales Prize		50 00
	Experimental Fruit Stations		80 60
4181	San Jose Scale		35 00
4180	Winter Fair Building bal. of Contract		1,484 00
4179	Osgoode Township Agricultural Society.		64 00
			$5,662 21

Yours very truly,
(Sgd) C. C. JAMES,
Deputy Minister of Agriculture.

C. H. SPROULE, Esq.,
Provincial Auditor.

Approved and recommended,
(Sgd) JOHN DRYDEN,
Minister of Agriculture.

Copy of a Minute of the Treasury Board, dated 6th January, A.D. 1903 :

Upon consideration of the report of the Honourable the Minister of Agriculture, dated the 31st day of December, A.D. 1902, the Treasury Board doth hereby pursuant to the provisions of section 20, cap. 23, R. S. O. 1897, authorize the issue of a warrant for the sum of five thousand six hundred and sixty-two dollars and twenty-one cents ($5,662.21) in favour of the Honourable the Treasurer for the payment of certain accounts chargeable to the appropriation for Agriculture which has become exhausted owing to the unexpected demands for inspection in connection with the San Jose Scale and the large growth of Farmers Institute work during the year, and because revenues from the Eastern Dairy School and some of the Departments of the College cannot be turned in for some days yet.

Certified,

J. LONSDALE CAPRÉOL,

Clerk, Treasury Board.

Total Treasury Board Orders			74,790 40
Less refunds and transfers after issue of Treasury Board Orders :			
Civil Government :—			
Public Works Dep't		$ 110 71	
Education :—			
Superannuated Teachers		25 00	
P. I. Maintenance :—			
Orillia L A	$ 934 73		
Boys' Reformatory	83 66		
Mercer Reformatory	37 66		
		1,056 05	
Agriculture		1,848 39	
Repairs and Maintenance :—			
Education Buildings	6 69		
School P. Science	48 00		
Osgoode Hall	31 52		
		86 21	
Public Buildings :—			
Mercer Reformatory	93 37		
Cobourg Asylum	243 75		
		337 12	

Public Works :—			
Mississagua R. Bridge		$1,139 42	
Colonization Roads		123 93	
Refunds :—			
Crown Lands		326 29	
			5,058 12
			69,732 28

UNAUTHORIZED EXPENDITURE.

Civil Government :—			
Lieutenant-Governor's Office	$ 97 00		
Education Department	65 12		
Secretary's Department	41 18		
Public Institutions Office	141 52		
		$344 82	
Legislation		771 60	
Education :—			
Public and Separate Schools	644 98		
Library and Museum	41 08		
Public Libraries	30 20		
		716 26	
Repairs and Maintenance :—			
Parliament Buildings		179 31	
Public Buildings :			
London Asylum	121 71		
Deaf and Dumb Institute	6 50		
Agricultural College	4 16		
		132 37	
			2,144 36
Total overdrafts of appropriations under Schedule A of Supply Bill (see Statement No. ——, page ——)			$71,876 64

SPECIAL WARRANTS ISSUED UNDER ORDER OF HIS HONOUR THE LIEUTENANT-GOVERNOR.

49 Vict., Chap. 4, Sec. 9, Sub.-Sec. 2.

Copy of an Order-in-Council approved by His Honour the Lieutenant-Governor, the 30th day of January, A.D. 1903.

The Committee of Council have had under consideration the reports of the Honourable the Attorney-General, the Honourable

the Minister of Education, the Honourable the Minister of Agriculture, the Honourable the Minister of Crown Lands, the Honourable the Provincial Secretary, and the Honourable the Commissioner of Public works, dated respectively 30th January, 1903, and the report of the Honourable the Treasurer, of the same date, wherein he states that the sum of eighty thousand dollars appropriated by the Supply Bill of last Session assented to on the 17th day of March, 1902, to defray the expenses of Legislation, Public Institutions Maintenance and for salaries of the Officers of the Government and the Civil Service for the month of January, 1903, has become exhausted, and as the Legislative Assembly has not yet been called for the despatch of business, some time will elapse before a vote of credit can be obtained, and in the meantime it is necessary and urgent that further provision should be made for the above services to the following extent, namely:—

Legislation	$ 10,000
Public Institutions Maintenance	120,000
Civil Government	50,000

The Treasurer further states that in accordance with the provisions of section 3 of the said Supply Bill all balances remaining unexpended after the 20th day of January, instant, lapsed and have been written off, and in addition to the above sums in order to avoid great inconvenience to the different branches of the Public Service it is urgently and immediately necessary that provision should be made to defray expenses in connection with the other services as follows:—

Administration of Justice	$20,000
Education	20,000
Agriculture	20,000
Repairs and Maintenance Public Buildings and Public Works and Buildings (Cap. Acct.)	20,000
Charges on Crown Lands	15,000
Colonization Roads	5,000
Miscellaneous	20,000

The Treasurer recommends that pursuant to the provisions of sub-section 2 of section 9, chapter 23, R.S.O., 1897, a special warrant for the sum of three hundred thousand dollars ($300,000) be issued by your Honour, to be placed by the Treasurer to a special account against which cheques may be issued from time to time as

may be required for the payment of expenditures in connection with the services above specified.

The Committee concur in the recommendation of the Treasurer and advise that the same be acted on.

Certified,

LONSDALE CAPRÉOL,

Asst. Clerk, Executive Council.

TREASURY BOARD OVER-RULINGS.

49 Vic. Chap. 4, Sec. 9, Sub-Sec. 4.

August 25th, 1902.

Memo. for Mr. Cartwright.

Enclosed find Treasury voucher No. 2014 and Crown Lands Department fyle No. 16021 *re* Wainfleet refund.

One point to which criticism might be directed is the question of interest. These lots have been occupied for 30 or 40 years, and a patent now issues on a valuation made in 1859, while interest is charged for 20 years only.

The second point is that in my opinion sec. 9, cap. 12, R. S. O. should prohibit any Member of the Legislature from transacting any business, either directly or indirectly, with a Public Department, out of which profit may be derived. A ruling on this point by the Treasury Board is desirable

(Sgd.) C. H. SPROULE,

Copy of a Minute of the Treasury Board dated the 27th day of August, A.D. 1902:

Upon consideration of the report of Mr. Aubrey White, Assistant Commissioner of Crown Lands, dated the 11th day of July, 1902, the Treasury Board doth hereby order that a warrant for the sum of Nine hundred and eighty-eight dollars and eighty cents ($988.80) be issued in favour of the Honourable Richard Harcourt, being for refund of amount overpaid by his firm in connection with the purchase by Mr. J. S. Simpson of parts of Lots 16 and 17 in the 4th Concession of the Township of Wainfleet, County of Welland.

Certified,

J. LONSDALE CAPRÉOL,

Clerk, Treasury Board.

PROVINCIAL AUDITOR'S OFFICE,

TORONTO, Ontario, Sept. 17, 1902.

11th July, 1902.

Memorandum for Mr. SPROULE:

When the prices of these lands were being fixed the papers were referred to the Law Clerk to make out a ruling to be signed by the Commissioner or myself. The valuation of the land was to be ascertained by a document called the Misner report. The Law Clerk in examining the report inadvertantly took the column which gave the value of the improvements per acre as indicative of the price to be charged per acre, instead of the column in which the values were set forth. The result of this error was that 28 acres of the land was charged for at the rate of $15 per acre instead of $7, 44 acres at the price of $10, instead of $6, and 29½ acres at a price of $10 instead of $6. The ruling was signed by me, assuming that the calculations were correct, the money was paid in and the patent was ordered. Subsequently, our attention was called to the matter by the purchaser of the lot through his Solicitor, and upon re-examination of the Misner report the mistake was discovered, and it was found that we had overcharged the sum of $988 80. The Honourable Mr. Harcourt, whose firm had been acting for the purchaser Mr. Simpson and had therefor paid in the money on his behalf, applied to have a refund of the amount and a requisition was made on the Treasury for a refund of $988.80.

The matter seems to be entirely regular as far as the refund is concerned, the only mistake was in the original computation of the prices. If there is any further explanation required I will be very glad to make it.

AUBREY WHITE,
Assistant Commissioner.

Approved, T. W. G.
E. J. D.

MISCELLANEOUS STATEMENTS.

No. 1.

Balance Sheet showing the Receipts and Payments of the Treasurer of Ontario during the year 1902, with the Cash Balances on the 1st of January and 31st of December.

RECEIPTS.	$ c.	$ c.	$ c.
To Balance from Public Accounts, 1901			175,561 74
CONSOLIDATED REVENUE FUND.			
From Dominion of Canada:			
" Subsidy	1,116,872 80		
" Special grant	80,000 00		
		1,196,872 80	
" Interest on capital held and debts due by the Dominion to Ontario.	142,414 48		
" Interest on investments	53,404 52		
		195,819 00	
" Crown Lands Department:			
Crown Lands	77,969 18		
Grammar School Lands	1,100 20		
University Lands	2,014 76		
Rent	65,168 94		
Railway Lands	83 38		
Woods and Forests	1,331,352 10		
Mining Licenses	2,742 00		
Casual Fees	479 72		
Cullers' Fees	256 00		
Assay Fees	1,736 38		
Algonquin Park	59 50		
Rondeau Park	24 50		
Refunds: Forest Reserve...10 50			
Agts. Salaries ...50 00			
Inspections 37 50			
	98 00	1,483,084 66	
" Licenses		371,908 24	
" Law Stamps		54,177 70	
" Algoma Taxes		3,770 66	
" Education Department		64,141 74	

PAYMENTS.	$ c.	$ c.	$ c.
CONSOLIDATED REVENUE FUND.			
For Civil Government		285,203 42	
" Legislation		140,771 60	
" Administration of Justice		432,753 54	
" Education		804,909 15	
" Public Institutions Maintenance		864,398 93	
" Immigration		4,777 25	
" Agriculture		234,339 82	
" Hospitals and Charities		215,521 84	
" Repairs and Maintenance Public Bldgs		91,293 18	
" Locks, Dams, etc		14,954 23	
" Colonization Roads		196,246 07	
" Charges Crown Lands		227,070 05	
" Surveys, Inspections, etc		1,831 88	
" Refunds *re* Crown Lands	21,090 19		
Education	1,069 78		
Miscellaneous	132 06		
		22,292 03	
" Miscellaneous		279,251 71	
			3,815,614 70
OPEN ACCOUNTS.			
For Asylum for Insane, Toronto		4,544 95	
" " Mimico		5,383 36	
" " London		28,416 71	
" " Hamilton		4,244 69	
" " Kingston		9,886 87	
" " Brockville		4,647 27	
" " Cobourg		19,011 79	
" " Orillia		7,400 32	
" Reformatory for Females, Toronto		9,697 95	
" Reformat'ry for Boys, Penetanguishene		3,751 60	
" Central Prison, Toronto		8,376 39	
" Deaf and Dumb Institution, Belleville		3,887 70	

" Secretary's Department		108,184 91	
" Fisheries Branch		40,140 70	
" Supplementary Revenue Act (62 and 63 Vic.)		245 976 00	
" Succession Duty		236,169 54	
" Casual Revenue		109,950 32	
" Sale of Lands at Toronto Asylum		3,000 00	
" Public Institutions:			
Toronto Lunatic Asylum	39,980 86		
London "	15,380 50		
Hamilton "	14,763 97		
Kingston "	6,665 82		
Brockville "	8,079 85		
Mimico "	8,504 16		
Orillia "	4,694 67		
Cobourg "	493 71		
Reformatory for Boys	467 50		
" Females	2,188 37		
Blind Institution	525 01		
Deaf and Dumb Inst. 284 50			
Less Hutchin's Beq. 139 79			
" Kelly " 34 00			
173 79			
	110 71		
Central Prison Industries	21,000 00		
		122,855 13	
		4,236,051 40	

OPEN ACCOUNTS.

From Crown Lands Department:			
Clergy Lands	5,502 26		
Common School Lands	12,931 31		
" Drainage Works, rent, charges	3,999 67		
" Drainage Debentures	17,413 06		
" " Tile	10,148 21		
" Public Works and Buildings re Capital Account:			
Old Parliament Buildings	5,000 00		
Bracebridge Lock-up	10 00		
Stoney Creek Bridge	5 00		
Huntsville Bridge	22 00		
		55,031 51	
Total Receipts			4,291,082 91
Carried forward			4,466,644 65

" Blind Institution, Brantford		2,616 14	
" Agricultural College		35,804 16	
" Normal School, Ottawa		2,637 57	
" " London		1,814 71	
" School of Practical Science		34,927 13	
" Osgoode Hall		1,990 82	
" New Parliament Buildings		312 74	
For District of Algoma:			
Court House, etc., Sault Ste. Marie	640 00		
Lock-up, Gore Bay	1,014 38		
" Blind River	306 21		
" Chapleau	1,038 36		
" Wawa	394 43		
		3,393 38	
" District of Thunder Bay:			
Lock-up, etc., Port Arthur	15 00		
" Fort William	15 00		
		30 00	
" District of Muskoka:			
Registry Office, etc., Bracebridge		1,648 23	
" District of Parry Sound:			
Court House, Lock-up, Parry Sound	217 49		
" Byng Inlet	1,232 35		
		1,449 84	
" District of Nipissing:			
Lock-up, etc., Mattawa	19 97		
" Court House, North Bay	50 39		
" Warren	600 00		
		670 27	
" District of Rainy River:			
Lock-up, etc., Court House, etc., Rat Portage	610 35		
" Fort Francis	37 10		
" Mine Centre	6 50		
" Emo	301 55		
" Atikokan	776 50		
		1,732 00	
" Muskoka Lakes Works		10,680 93	
" Madawaska River Works		908 29	
" Petewawa River Works		624 46	
" Sturgeon River Works		1,301 71	
" Magnetewan Swing Bridge		5 58	
" Mary and Fairy Lakes Works		5,976 16	
" Black River Works		1,000 00	
" Mattawa River Works		500 00	
" Wabis River Works		1,340 51	
" Muskoka River Bridge Works		2,000 00	
Carried forward		222,614 23	3,815,614 70

No. 1.—Balance Sheet showing the Receipts and Payments of the Treasurer of Ontario during the year 1902, with the Cash Balances on the 1st of January and 31st of December.—*Concluded.*

RECEIPTS.	$ c.	$ c.	$ c.	PAYMENTS.	$ c.	$ c.	$ c.
Brought forward			4,466,644 65	*Brought forward*		222,614 23	3,815,614 70
				For Des Joachims Bridge Works		4,000 00	
				" Indian Point Bridge Works		2,596 61	
				" Mississagua River Works		4,355 94	
				" Bass Lake Dam Works		1,144 19	
				" Squaw River Dam Works		581 56	
				" Docks on Rainy River		2,450 00	
				" Indian River Deepening		110 26	
				" Landing Dock, Wabigoon		777 95	
				" Mackenzie Creek and Snake River		341 00	
				" Stoney Creek Bridge		831 68	
				" Cashmere Dam		1,000 00	
				" Drainage, 63 Vic., c. 8		5,297 00	
				" Refund *re* Municipalities Fund Widows' Pensions		368 32	
				" Refund *re* Land Improvement Fund		2,579 98	
				" Aid to Railways		126,177 11	
				" Annuities		102,900 00	
				" Drainage Debentures, Municipal		925 12	
				" " Tile		700 00	
				" Common School Lands		9,193 18	
				" University of Toronto		40,444 75	
							529,388 88
				Total expenditure			4,345,003 58
Stationery Account, excess of distribution over purchase			938 42				
Amount withdrawn from Special Deposits as per Statement No. 4			1,792,500 00				
				Special Deposits as per Statement No. 4			1,727,300 00
				Balance (see Statement No. 2)			187,779 49
Total			6,260,083 07	Total			6,260,083 07

PROVINCIAL AUDITOR'S OFFICE.
TORONTO, February 15th, 1903.

C. H. SPROULE,
Provincial Auditor.

No. 2.

OPEN ACCOUNTS.

Statement of Balance of Open Accounts, 31st December, 1902.

			$ c.		$ c.
Current Balance,	Bank of Commerce	61,115 12		Consolidated Fund	14,929,812 27
	Imperial Bank	23,639 07		Municipal Loan Fund	1,659,125 85
	Ontario Bank	13,436 88		Common School Fund	1,097,680 03
	Traders' Bank	27,338 40		Municipalities Fund	4,520 13
	Bank of Toronto	49 750 24		Railway Fund	400,162 35
	Union Bank	8,354 12		Annuities	755,779 27
	Bank of Hamilton	3,605 24		Dominion of Canada	500,000 00
	Sovereign Bank	443 80			
	Metropolitan Bank	86 30			
	Standard Bank	10 32			
			187,779 49		
Special Deposits,	Bank of Commerce	160,000 00			
	Imperial Bank	200,931 25			
	Ontario Bank	226,800 00			
	Traders' Bank	85,000 00			
	Standard Bank	125,000 00			
	Bank of Hamilton	210,000 00			
	Bank of Toronto	50,000 00			
	Union Bank	70,000 00			
	Sovereign Bank	50,000 00			
	Metropolitan Bank	50,000 00			
			1,227,731 25		
Dominion of Canada			72,717 76		
Railway Aid			3,723,390 58		
Surplus Distribution			3,388,777 47		
Grant to Provincial University			160,000 00		
University of Toronto (1 Edwd. VII, sec. 16, Cap. 41)			65,725 75		
Toronto General Hospital			4,000 00		
Stationery Account			8,801 59		
Drainage, 63 Vic. Cap. 8			13,864 30		
Carried forward			8,852,788 19		19,347,079 90

No. 2.—STATEMENT of the Balance of Open Accounts.—*Continued.*

	$ c.		$ c.
Brought forward	8,852,788 19		19,347,079 90
Drainage Assessment Fund	16,043 37		
Drainage Debentures	59,589 76		
Tile Drainage Debentures	89,756 60		
Brockville Asylum	486,058 90		
Hamilton Asylum	886,163 39		
Kingston Asylum	477,619 30		
London Asylum	957,368 49		
Mimico Asylum	611,811 53		
Orillia Asylum	534,389 42		
Toronto Asylum	379,064 04		
Cobourg Asylum	115,890 06		
Institution for Blind	278,472 89		
do for Deaf and Dumb	328,340 31		
Andrew Mercer Reformatory	147,815 84		
Reformatory for Boys, Penetanguishene	185,779 16		
do do Oxford	96 00		
Central Prison	868 532 87		
Old Parliament Buildings	102,306 49		
New Parliament Buildings	1,330,022 39		
Government House	183,726 48		
Normal School, Ottawa	225,763 69		
do Toronto	178,592 22		
do London	98,263 18		
School of Practical Science	298,647 33		
Osgoode Hall	122,754 54		
Agricultural Hall	324 00		
Agricultural College	539,556 72		
Western Dairy School	14,583 71		
Kingston Mining and Dairy School	12,048 11		
Agricultural Farm, Mimico	27,648 85		
Pioneer Dairy Farm	5,178 43		
Lake Scugog Flats Road	1,500 00		
Kushog Lake Dam	300 00		
High Falls Dam	7,343 07		
Pigeon River Dam	2,363 00		
Lake of Bays Works	581 82		
Georgian Bay Works	6,758 70		
Mary and Fairy Lake Works	79,937 12		

Balsam and Cameron Lake Works	40,544 13
Muskoka Lake Works	24,843 19
Muskoka River Works	71,817 99
Cobb Lake Works	1,102 08
Muskrat River Improvement	893 76
Union Creek Improvement	1,050 63
Head River Works	976 82
River Beaudette Works	3,000 00
Madawaska River Works	8,292 92
Mississicua River Works	9,345 78
Bottle Lake Dam	4,068 72
Mississippi River Works	4,730 71
Otonabee do	11 662 91
Scugog do	91,928 84
Talbot do	605 95
Squaw do	2,269 72
Bonnechere do	338 50
Gull and Burnt do	100,709 90
Stony Creek Works	4,826 68
Nation River Works	19,877 23
Nogies do	1,662 72
Peninsula do	34,993 02
Obstructions in navigable streams	513 02
Magnetawan River Works	9,688 90
Deer Lake Works	1,420 17
Bridge Portage du Fort	5,500 00
Mill Creek Works	1,000 00
Southampton Pier	2,472 63
Port Elgin Pier	1,750 00
Shoal Lake Works	1,998 25
Lock at Young's Point	300 00
Lock at Magnetawan	56,425 30
Star Lake Improvement	412 22
Winnipeg River Dam	4 000 00
Payne River Improvement	4,000 00
Inkerman Dam Works	1,000 00
Ash Rapids Dam	800 00
Petewawa Bridge	3,879 25
Moose River Channel	1,000 00
Manitou Lake Dam	520 59
Chemong Lake Bridge	3,500 00
Bear Creek Works	1,617 52
Bridge, Township Cambridge	1,000 00
Sturgeon River Works	3,616 08
Indian Point Bridge	2,596 61
Mackenzie Creek Works	200 35
Rainy River Docks	2,450 00
Wabigoon Dock	777 95
Carried forward	19,065,761 01

Carried forward	19,347,079 90

No. 2.—Statement of the Balance of Open Accounts.—*Concluded.*

	$ c.		$ c.
Brought forward	19,065,761 01	*Brought forward*	19,347,079 90
Mattawa River Works	500 00		
Wabis Creek Works	1,340 51		
Indian River Works	110 26		
Snake River Works	140 65		
Cashmere Dam	1,000 00		
Des Joachim Rapids	4,000 00		
Black River Works	1,000 00		
Bass Lake Works	1,144 19		
Registry Office and Lock, etc., Algoma District	68,008 04		
Mu-koka do	25,911 08		
Nipissing do	53,216 74		
Parry Sound do	34,167 92		
Thunder Bay do	47,526 84		
Rainy River do	38,727 64		
Haliburton do	2,168 80		
Brock's Monument and shelter buildings	2,356 22		
Total	19,347,079 90	Total	19,347,079 90

C. H. SPROULE,
Provincial Auditor.

Provincial Auditor's Office,
Toronto, February 15th, 1903.

Statement of the Consolidated Revenue Fund, 31st December, 1902.

	$ c.	$ c.		$ c.	$ c.
To expenditure as per Statement No. 1	3,815,614 70		By balance, as per Statement No. 3, 1901	14,507,975 23	
To Land Improvement Fund	2,579 98	3,818,194 68	By receipts, as per Statement No. 1	4,236,051 40	18,744,026 63
			By Municipalities Fund :		
			Twenty per cent. on account collected during the year for cost of management		1,100 45
			By Municipalities Fund :		
			Receipts from Clergy Lands added to the grant to Public and Separate Schools, 1902 (see 50 Vic. cap. 5)		2,879 87
To balance		14,929,812 27			
		18,748,006 95			18,748,006 95

Provincial Auditor's Office,
Toronto, February 15th, 1903.

C. H. SPROULE,
Provincial Auditor.

No. 4.

INVESTMENT ACCOUNT.

To whom paid.	Nature of investment.	Amount.	Amount.	Amount.	Amount.
		$ c.	$ c.	$ c.	$ c.
Sundry banks	Amount of special deposits 31st December, 1901		1,292,931 25		
Bank of Commerce	Special deposits made up to December 31st, 1902	320,000 00			
Ontario Bank	do do	267,300 00			
Imperial Bank	do do	195,000 00			
Bank of Hamilton	do do	285,000 00			
Traders' Bank	do do	80,000 00			
Bank of Toronto	do do	210,000 00			
Standard Bank	do do	215,000 00			
Union Bank	do do	55,000 00			
Sovereign Bank	do do	50,000 00			
Metropolitan Bank	do do	50,000 00			
			1,727,300 00		
			3,020,231 25		
	Less amount drawn to meet current expenditure :				
	Bank of Commerce	355,000 00			
	Ontario Bank	310,000 00			
	Imperial Bank	347,500 00			
	Bank of Hamilton	255,000 00			
	Traders' Bank	50,000 00			
	Bank of Toronto	240,000 00			
	Standard Bank	200,000 00			
	Union Bank	35,000 00			
			1,792,500 00		
				1,227,731 25	
	Interest bearing securities held by Province :				
	Drainage loans		16,043 37		
	do debentures		59,589 76		
	Tile drainage debentures		89,756 60		
	Municipal debentures		25,572 50		
				190,962 23	
					1,418,693 48

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, February 15th, 1903.

C. H. SPROULE,
Provincial Auditor.

No. 5.

INTEREST ACCOUNT.

Statement of interest received during the year ended 31st December, 1902.

From whom received.	Nature of investment.	Amount.	Total.
		$ c.	$ c.
Hon. Minister of Finance, Ottawa	Interest on capital held and debts due to the Province by the Dominion		142,414 48
Sundry municipalities	Interest on drainage loans and debentures		8,438 18
Sundry persons	Interest on overdue succession duty		739 53
" "	Interest on funds deposited with Provincial Treasurer in lieu of bond for payment of succession duty		1,198 76
" "	Interest on overdue fees		206 74
Henry Abell	Interest on overdue purchase money. Asylum Lands		124 52
Kerr, Davidson, Patterson & Grant	Interest on money deposited in court *re* Hood *vs.* Taylor		2 63
Ontario Bank	Interest on special deposits	8,120 49	
Bank of Commerce	do	6,434 33	
Bank of Hamilton	do	7,104 12	
Traders' Bank	do	2,344 90	
Imperial Bank	do	7,420 36	
Standard Bank	do	4,956 90	
Bank of Toronto	do	4,754 35	
Union Bank	do	2,259 43	
Metropolitan Bank	do	86 30	
Sovereign Bank	do	443 80	
			43,924 98
			197,049 82
	Deduct Payments and Refunds:		
	Interest on funds deposited with Provincial Treasurer in lieu of bond for payment of succession duty	1,198 76	
	Accrued interest on drainage debentures purchased from Tp. N. Easthope	18 42	
	Refund of interest overpayment by Tp. Dunwich	13 64	
			1,230 82
			195,819 00

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, February 15th, 1903.

C. H. SPROULE,
Provincial Auditor.

No. 6

EDUCATION REVENUE.

STATEMENT OF RECEIPTS of the Education Department during twelve months ended December 31st, 1902.

—	Particulars.	Amount.	Total.
		$ c.	$ c.
Normal and Model Schools, Toronto	Fees from Normal, Model and Kindergarten students and pupils	12,123 00	
do do Ottawa	do do do do	7,353 00	
do London	do School students	1,259 00	20,735 00
Departmental Examinations	Examination fees and appeals		20,785 03
Normal College	Fees from students		2,405 00
Superannuated Teachers	Subscriptions, 1902		1,073 50
Miscellaneous	Sale of School Acts, waste paper, etc		416 86
Refunds	No. 11 Ameliasburg		25 00
School of Practical Science	Students' fees		18,701 35
			64,141 74

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, February 15th, 1903.

C. H. SPROULE,
Provincial Auditor.

No 7.

FISHERIES, 1902.

Statement of Revenue received from Fisheries Department during the year ended 31st December, 1902.

District.	Name.	Amount.	Total.
		$ c.	$ c.
Lake Nepigon	McKirdy, William	1,095 00	
Lake of the Woods and Rainy River Dist.	Nash, John	1,393 00	
	Guerard, Alexander	40 00	
	Perry, John	25 00	
Lake Superior	McComber, Alexander	1,385 00	
	Van Norman, R M	1,226 00	
Lake Huron, North Channel	Oliver Richard	4,499 00	
Georgian Bay	Howard, Patrick	225 00	
	Johnston, J. A	211 25	
	Labatt, Felix	35 00	
	Pratt, William	130 00	
	Payette, Thomas	126 00	
	Stephens, James	262 00	
	Waddell, Adam	312 00	
Lake Huron (proper) and River St. Clair.	McAulay, M A	373 00	
	Stewart, Neil	69 00	
	Yates, James	505 00	
	Steed, James	2,843 00	
Lake St. Clair, Thames River and Detroit River.	Allan, Orlando	436 50	
	Cousineau, J B	747 00	
	Stephens, John E	225 00	
	McRitchie, James	77 50	
	Crotty, John	3 00	
	Jurv, R. E	15 44	
Lake Erie and Grand River	Lamarsh, Peter	3,240 51	
	Laird, J. K	4,730 00	
	Stewart, William	1,141 00	
	Wonnacott, C. W	4,260 00	
	McCall, George D	2,413 65	
	Farrell, John	439 50	
	Couper, A	553 00	
	Ellis, Joseph	581 00	
Lake Ontario	Hadgraft, Robert	396 00	
	Ogg, Charles	255 00	
	Sargent, William	80 00	
	Walker, R. J	27 00	
	Wood, W. R	116 00	
	Willis, J. M	53 00	
	Freeman, Sylvanus	126 50	
	Clark, Marshall	190 00	
Bay of Quinte	McCargar, J K	320 00	
	Roblin, W. D	95 50	
	Rennie, William	181 00	
Counties:—Frontenac, Leeds, Prescott, Russell, Carleton, Renfrew, Lanark.	Clyde, George	625 00	
	Craig, William	138 00	
	Flynn, Robert	102 00	
	Donaldson, W. J	4 00	
	Sliter, A. E	65 00	
	Bilton, George	145 00	
	Norris, T. B	16 00	
	Flood, A. J	100 00	
	O'Connor, C. J	1 00	
	Mair, David	5 00	
	Villeneuve, L. P	52 25	
	Loveday, E. T	9 00	
	Barr, Henry	127 00	
	Taylor, Charles	24 00	
Peterborough, Northumberland, Victoria and other inland counties	Brown, John	5 00	
	Yellands, J. H	40 00	
	Cock, Lewis	327 60	
	Carried forward	37,243 20	

No. 7.

FISHERIES, 1902.—*Concluded.*

District.	Name.	Amount.	Total.
		$ c.	$ c.
	Brought forward	37,243 20	
	Brady, Nicholas	52 50	
	Nicholls, Thomas	30 00	
	Gerow, J. A.	5 00	
	Bowerman, John	6 00	
	Van Luven, H. M.	33 00	
	McIntyre, A. W	15 00	
	Wensley, P. J.	3 00	
River St. Lawrence	Cattanach, D	287 00	
	Driscoll, John	20 00	
	Goulette, O. V.	91 00	
	Mathen, Henry	13 00	
	Blondin, Isaac	18 00	
[illegible]	Gibson, J. R	5 00	
Lake Simcoe	Steele, John	25 00	
Muskoka	Smith, Willaim	30 00	
Nipissing	Legault, H. M	1,545 00	
	Mullin, M	170 00	
	Armstrong, John	22 00	
Unclassified		90 00	
Lease of lake Nepigon	First quarter payment	500 00	
			40,203 70
Less Refunds :—			
George Grant 1899	County Ontario (fine)	10 00	
George Thompson do	do do	10 00	
Richard Lightfoot do	do do	10 00	
John Steele do	do do	10 00	
Henry Barr 1901	County Renfrew (half fines)	13 00	
Levi E. Kinsley do	do Welland (fine)	5 00	
Robert Gray do	do Peterborough (half fine)	5 00	
			63 00
			40,140 70

C. H. SPROULE,
Provincial Auditor.

Provincial Auditor's Office,
Toronto, February 15th, 1903.

No. 8.

STATEMENT OF RECEIPTS of the Secretary's Department during twelve months ended 31st December, 1902.

FROM WHOM RECEIVED.	SERVICE.	$ c.	$ c.
Provincial Secretary's Department ...	Letters Patent, Licenses, etc	94,526 60	
	Returns from Companies	8,038 05	
	Marriage Act Forms	3,218 50	
	Notarial Commissions	440 15	
	Commissions under Great Seal	1,158 35	
	Certificates	123 50	
	Searches	449 76	
		107,954 91	
	Less refunded The John Abell Engine and Machine Co., O.C. 20th October, 1902	385 00	
			107,569 91
Provincial Registrar's Office	Exemplification of Patent 1 @ $8.25	8 25	
	Certified copies do 24 @ 2.50	60 00	
	Certificates 1 @ .50	50	
	Searches and Extracts 113 @ .25	28 25	
	Special Copies	28 50	
			125 50
Registrar General's Branch	235 Certificates of Birth @ .50	117 50	
	74 do Marriage @ .50	37 00	
	205 do Deaths @ .50	102 50	
	930 Searches @ .25	232 50	
			489 50
			108,184 91

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, February 15th, 1903.

C. H. SPROULE,
Provincial Auditor.

No 9.

ALGOMA TAXES REVENUE.

STATEMENT showing the several amounts received by the Treasurer of Ontario on account of TAXES ON PATENTED LANDS in the Districts of Algoma, Thunder Bay and Rainy River, during the year ended December 31st, 1902.

From whom received.	Service.	Amount.	Total.
		$ c.	$ c.
Allison, D. W	On account of taxes	53 55	
Armstrong, William	do	25 14	
Allison, Mrs. Isabella	do	1 38	
Austin, Mrs. W. A	do	2 00	
Armour & Mickle	do	2 00	
Brewster, Charles E	do	6 84	
Bird, John P	do	1 62	
Bergenthal, William	do	69	
Bearinger, Isaac	do	14 09	
Banks, G	do	83	
Brown, W. L	do	14 68	
Bacon, D. H	do	2 65	
Blake, Lash & Cassels	do	70 36	
Braden, F. B	do	49 20	
Bliss, A. P	do	5 24	
Berger, William	do	72	
Bruce, A C	do	16 05	
Bradley, H. M	do	66	
Binswanger, H. P	do	1 60	
Browne, J. C	do	1 90	
Baker, J. L. & Alfred	do	3 04	
Ballantine, A. R	do	39 59	
Bevan, Mrs S. L	do	4 79	
Bawden, J	do	64 71	
Crombie, Worrell & Gwynne	do	438 33	
Campbell, A. G	do	2 21	
Carpenter, E. C	do	2 44	
Canadian Copper Co	do	125 37	
Conrick, John P	do	15 93	
Crenshaw, W. C, Jr	do	6 56	
Crompton, Frederick	do	4 22	
Campbell, Colin	do	3 52	
Cassils, Charles	do	2 30	
Cochrane, John C. T	do	5 61	
Cockburn, Mrs. Isaac	do	76	
Colvin, W. W	do	11 72	
Candler, H. & J	do	3 08	
Campbell, A. H., J. H. M. & A. H., Jr.	do	6 71	
Cook Land Co	do	9 03	
Cressy, Mrs. E. H	do	1 09	
Danforth, Mrs. G	do	1 60	
Delaney, Estate T	do	15 66	
Deschamps, P	do	1 32	
Duncan, Clarke, S. C	do	14 25	
Davies, C. W	do	18 27	
Dalrymple, Estate William F	do	50 88	
Davis, H. A	do	2 77	
Eschweiler, F. C	do	7 91	
Ericson, Charles W	do	29 43	
Folger Bros	do	5 96	
Folger, B. W	do	80	
Ferguson, P	do	85	
Ferguson, Mary	do	88 83	
Carried forward		1,260 74	

No 9.

ALGOMA TAXES REVENUE.—*Continued.*

From whom received.	Service.	Amount.	Total.
		$ c.	$ c.
Brought forward		1,260 74	
Francis & Wardrop	On account of taxes	7 12	
Fabian, W. J	do	1 57	
Goodell, R. R	do	85	
Gay, J. E	do	6 28	
Griswold, F. A	do	40	
Goetz, Alois	do	1 87	
Harty, William & J. A. Proctor	do	154 53	
Harvey, John G	do	3 36	
Hubbard, J. H	do	1 32	
Heck, Mrs. M. A	do	10 63	
Harris, Theo S	do	66	
Hartford Gold Mining & Develop't Co.	do	1 97	
Harris, Fred O	do	70	
Ionson, William	do	1 60	
Inglis, W. J	do	80	
Jenks, Russ. S	do	53 22	
Jones, Albert E	do	12 24	
Krause, Henry C	do	2 71	
Krause, C. A	do	2 40	
Krause, Charles H	do	3 44	
K. & P. Iron Mining Co	do	14 49	
Kerr, Bull & Rowell	do	19 77	
Lamport, W. H	do	7 26	
Larke, T. H	do	10	
London & Western Trusts Co	do	18 56	
Lee, Higginson & Co	do	101 40	
Lailey, Estate Thomas	do	24 44	
Lye, Henry	do	27 83	
Mingaye, W. R	do	14 74	
Mickle, Mrs. & Mrs Power	do	94 46	
Morgan, J. G	do	60	
Murdock, Mrs. O. N	do	4 00	
Messer, A	do	1 60	
Machin, Rev. C. J	do	12 12	
Markell, Clinton	do	7 43	
Mutual Gold Development Co	do	45 08	
Machell, H. T., M. D	do	7 66	
Moore, G. S	do	5 42	
Maxwell, Ralph	do	3 62	
Murphy, J. L	do	63 42	
McPherson, Clark, Campbell & Jarvis	do	29 09	
McColeman, N. B	do	4 64	
McIntosh, J. W	do	163 05	
McPherson, W. D	do	215 60	
McCahill, James	do	94 27	
McArthur Bros. Co	do	13 40	
McArthur, John	do	1 00	
McGee, James C	do	13 80	
National Trust Co	do	2 80	
Nairn, J. J	do	24 05	
Nason, Joseph	do	8 32	
Power, Mrs	do	19 03	
Paine, F. W	do	5 29	
Parsons, Mrs. Isaac	do	21	
Proctor, James A	do	32 71	
Palmer, Mrs. J. C	do	2 51	
Peden, William	do	97	
Phillips & Co	do	3 07	
Parsons, John	do	80	
Perley, G. H	do	13 87	
Carried forward		2,650 89	

No 9.

ALGOMA TAXES REVENUE.—*Concluded.*

From whom received	Service.	Amount.	Total.
		$ c.	$ c.
Brought forward		2,650 89	
Roberts, D. E	On account of taxes	2 66	
Ross, A. G	do	1 78	
Rickel, John G	do	79	
Riopelle, Joseph	do	13 50	
Rogers, Fred	do	7 07	
Robinson, G. H	do	2 33	
Reesor, H. A	do	29 26	
Senter, John	do	13 46	
Sylvain, John	do	7 68	
Spurney, Edward F.	do	3 48	
Scranton, G. G	do	85 50	
Sutton, W. P	do	1 95	
Smith & Greer	do	6 40	
Saltonstall, F. G	do	9 56	
Schneidler, Albert	do	89	
Scott, J. G	do	11 15	
Thompson, E	do	1 72	
Thomson, C. E	do	91	
Turner, William	do	700 81	
Thurston, C. B.	do	7 42	
Torrance, Caroline M	do	3 81	
Upham, N J. Co	do	1 68	
Vickers, W. W	do	23 48	
Wood, William	do	12 00	
Wilkinson, Thomas	do	1 00	
Wright, W. C	do	1 20	
Weadock & Purcell	do	3 33	
Waite, Daniel	do	1 45	
Wirth, Max	do	90	
Watzke, Anton	do	4 19	
Wright, A. W	do	5 29	
Young, A. H	do	3 12	
Yawkey, W. H	do	150 00	
			3,770 66

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, February 15th, 1903.

C. H. SPROULE,
Provincial Auditor.

No. 10.

Statement of Revenue received on account of Law Stamps, 31st December, 1902.

County.	Distributor.	Amount.
Brant	A. J. Wilkes	1,032 65
Bruce	Thomas Dixon	817 00
Carleton	J. A. Ritchie	1,562 75
Dufferin	T. Bowles	375 25
Elgin	J. Farley	1,315 25
Essex	F. E. Marcon	95 00
do	F. Cleary	671 50
Frontenac	J. L. Whiting	1,092 50
Grey	A. G. McKay	404 70
do	J. Armstrong	327 75
Haldimand	C. W. Colter	190 00
Hastings	P. J. M. Anderson	1,377 50
Huron	D. McDonald	1,368 00
Halton	T. G. Matheson	57 00
Kent	James Holmes	522 50
Lambton	J. P. Bucke	665 01
Lanark	E. G. Malloch	117 23
do	W. P. McEwen	475 00
Lennox and Addington	H. M. Deroche	546 25
Leeds and Grenville	O. K. Fraser	889 72
Lincoln	M. Brennan	95 00
Middlesex	James Magee	2,660 00
Northumberland and Durham	J. W. Kerr	1,425 00
Norfolk	C. C. Rapelje	166 25
Ontario	J. E. Farewell	418 00
Oxford	F. R. Ball	712 50
Peterborough	R. E. Wood	522 50
Prescott and Russell	J. Belanger	161 50
Prince Edward	J. R. Brown	163 88
Peel	W. H. McFadden	380 00
Perth	J. Idington	1,890 50
Renfrew	J. R. Metcalfe	843 60
Simcoe	J. R. Cotter	1,239 30
Stormont, Dundas and Glengarry	James Dingwall	760 00
Victoria	J. R. McNeillie	475 00
Waterloo	W. H. Bowlby	570 00
Welland	T. D. Cowper	796 11
Wellington	H. W. Peterson	1,235 00
Wentworth	John Crerar	3,030 50
York	James MacMahon	18,162 50
Toronto	Joseph Tait	3,239 50
Algoma District	G. M. Farwell	171 00
do do	T. H. Murray	199 50
Manitoulin do	W. H. Williams	2 00
Muskoka do	Isaac Huber	230 00
Nipissing do	A. G Browning	173 09
Parry Sound do	E. Jordan	63 66
Rainy River do	J. W. Humble	221 35
do do	W. J. Moran	47 50
Thunder Bay do	A. W. Thompson	220 40
		$54,177 70

C. H. SPROULE,
Provincial Auditor.

Provincial Auditor's Office,
Toronto, February 15th, 1902.

No. 11.

STATEMENT OF SUCCESSION DUTY FOR THE YEAR ENDING 31st DECEMBER, 1902.

County and Estate.	$ c.	$ c.	$ c.
BRUCE—			
John Gerolamy	613 18		
M. Pinkerton	15 00		
R. Purves	50 25		
		678 43	
CARLETON—			
W. H. Blackader	1,284 00		
F. Clemow	9,055 39		
G. M. Dawson	1,378 02		
John Dewe	12 50		
R. R. Dobell	307 98		
John Graham	4,738 84		
Geo. Logan	805 24		
Charles Logue	721 76		
D. O'Keefe	1,384 74		
W. Robertson	303 50		
R. Thackray	286 98		
J. O. Villeneuve	187 75		
Hannah Wright	4,982 91		
		25,449 61	
ELGIN—			
T. W. Duncombe	834 03		
George Scott	175 00		
J. H. Still	264 00		
George Suffel	103 00		
J. Wardell	532 71		
		1,908 74	
FRONTENAC—			
J. Minnes	149 75		
H. Rice	384 83		
		534 58	
GREY—			
D. Comely	687 47		
M. Leaman	1,397 94		
		2,085 41	
HALDIMAND—			
J. Mitchell		850 41	
HALTON—			
M. Miller		924 55	
HASTINGS—			
W. E. Gladney		75 00	
HURON—			
Isaac Rattenbury		2,277 48	
KENT—			
B. Brooke		165 00	
LAMBTON—			
C. Mackenzie		17,000 00	
LEEDS AND GRENVILLE—			
E. Barnes	217 29		
T. H. Giffin	1,118 49		
R. Janson	405 00		
J. McMahon	665 76		
		2,406 54	
LENNOX AND ADDINGTON—			
J. D. Ham		150 00	
Carried forward		54,505 75	

No. 11.

STATEMENT OF SUCCESSION DUTY, 1902.—*Continued.*

County and Estate.	$ c.	$ c.	$ c.
Brought forward		54,505 75	
LINCOLN—			
E. D. Dorr	274 97		
J. Theal	722 46		
G. Woodruff	150 00		
		1,147 43	
MIDDLESEX—			
Wm. Brown	134 51		
H. E. Conolly	985 65		
J. W. Croxall	536 38		
Wm. Grant	38 30		
L. H. Ingram	100 00		
C. McCallum	1,372 12		
Alex. McColl	592 29		
Wm. Miller	581 00		
J. Puddicombe	2,637 78		
G. N. Sayers	75 00		
J. Shields	1,324 92		
		8,377 95	
NORFOLK—			
D. C. Brady		500 00	
NORTHUMBERLAND AND DURHAM—			
P. Dawson	465 00		
Hy. Covert	19,500 00		
I. Holland	938 53		
R. Johnson	504 89		
A. McAllister	780 00		
Wm. Mitchell	2,074 12		
G. Waters	2,200 00		
		26,462 54	
ONTARIO—			
J. Barry	2,594 77		
Wm Bright	331 00		
		2,925 77	
OXFORD—			
M. A. Bell	729 46		
R. Bird	2,411 09		
Wm. McMillan	25 00		
		3,165 55	
PEEL—			
M. E. Bawtree	1,063 18		
Wm. Forster	160 17		
		1,223 35	
PERTH—			
A. Chalmers	200 00		
E. M. Dalton	410 00		
T. Thompson	31 75		
		641 75	
PETERBOROUGH—			
F. Andrews	25 00		
Wm. Hall	1,339 40		
		1,364 40	
PRINCE EDWARD—			
C. S. Wilson		16,150 64	
SIMCOE—			
J. Ceraswell		2,000 00	
STORMONT, DUNDAS AND GLENGARRY—			
G. McDonell	100 25		
C. W. Rose	25 00		
		125 25	
Carried forward		118,590 38	

No. 11.

STATEMENT OF SUCCESSION DUTY, 1902.—*Continued.*

County and Estate.	$ c.	$ c.	$ c.
Brought forward		118,590 38	
THUNDER BAY—			
V. McVicar		1,114 44	
VICTORIA—			
W. W. Logan		543 91	
WATERLOO—			
Thomas Shaw	272 01		
G. Brohmann	48 00		
		320 01	
WELLAND—			
L. G. Carter	555 00		
A. Strother	475 00		
H. C. Symmes	2,732 77		
		3,762 77	
WELLINGTON—			
Wm. Boyle	31 80		
E. Gordon	300 00		
R. Knox	1,462 95		
		1,794 75	
WENTWORTH—			
Wm. Adams	573 69		
S. H. Broadfield	32 30		
C. Buttle	43 00		
P. Cline	250 00		
A. M. Essex	98 25		
G. Fletcher	1,000 00		
M. A. Harvey	700 00		
J. Hunter	176 14		
W. H. Jones	658 76		
Hy. Kuntz	4,125 00		
H. Levy	150 00		
A. McLagan	650 00		
D. Muir	582 31		
J. H. Park	2,183 48		
A. A. Sawyer	497 43		
J. F. Wood	100 00		
		11,820 36	
YORK—			
A. Abraham	550 00		
Wm. Armstrong	50 00		
Hy. Allen	203 51		
Wm. Burton	1,204 68		
J. H. Beatty	9,000 00		
J. Burns	2,261 72		
H. Bacon	40 00		
H. Bengough	993 43		
A. S. Compain	444 07		
T. Cummings	535 70		
C. S. Crawford	202 76		
G. H. Douglas	755 17		
M. Hartney	93 40		
A. J. Harris	355 56		
C. H. Hubbard	11,000 00		
E. F. Hubbuck	1,286 18		
J. Henry	1,564 50		
B. Jennings	1,000 00		
J. Keterson	60 00		
E. Leadley	3,750 00		
J. Leaney	850 00		
Carried forward	36,200 68	137,946 62	

No 11.

STATEMENT OF SUCCESSION DUTY, 1902.—*Concluded.*

County and Estate.	$ c.	$ c.	$ c.
Brought forward	36,200 68	137,946 62	
YORK—*Continued.*			
T. McGaw	3,778 93		
C. Morison	4,166 97		
M. Nolan	631 32		
M. Palmer	100 00		
M. C. Parmenter	57 75		
Hugh Ryan	10,000 00		
J. W. H. Smythe	88 82		
J. Somerville	32 25		
Sarah Seymour	14 64		
Sir F. Smith	10,000 00		
I. Smith	540 34		
M. J. Sills	536 60		
H. Shackleton	720 60		
H. A. Torrey	298 33		
W. J. Thomas	3,038 00		
M. A. Young	183 25		
		70,388 48	
A. McDougall—			
On account succession duty		549 18	
Funds Deposited in lieu of Bonds for Payment of Succession Duty.			
FRONTENAC—			
Neil McLeod	1,400 00		
HASTINGS—			
G. Kolb.	900 00		
LEEDS AND GRENVILLE—			
James Mooney	1,200 00		
YORK—			
John Ryan	25,000 00		
		28,500 00	
		237,384 28	
Refunds.			
N. Hopkins (Oxford)	129 36		
J. E. Lewis (Peel)	48 76		
M. E. M. McFarlane (York)	167 45		
E. R. Mowat (Hastings)	869 17		
		1,214 74	
			236,169 54

C. H. SPROULE,
Provincial Auditor.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, February 15th, 1903.

No. 12

STATEMENT OF REVENUE.

Under 62 Vic. Cap. 8 ; 63 Vic. Cap. 6.

From whom received.	Service.	$ c.	$ c.
Life Insurance Cos	Ætna Life Insurance Co	1,446 70	
	British Empire Mutual Life Assurance Co	825 55	
	Canada Life Assurance Co	11,864 22	
	Confederation Life Association	5,735 23	
	Covenant Mutual Life Association	391 93	
	Commercial Union Assurance Co	51 77	
	Crown Life Insurance Co	32 12	
	Dominion Life Assurance Co	1,082 12	
	Equitable Life Assurance Society of the U.S	1,881 87	
	Edinburgh Life Assurance Co	151 70	
	Federal Life Assurance Co	2,151 48	
	Great West Life Assurance Co	1,111 56	
	Home Life Association of Canada	466 27	
	Imperial Life Assurance Co. of Canada	1,845 99	
	London & Lancashire Life Assurance Co	958 73	
	London Life Insurance Co	1,964 70	
	Liverpool & London & Globe Insurance Co	24 80	
	Mutual Reserve Fire Life Association	2,933 08	
	Manufacturers Life Insurance Co	4,417 02	
	Mutual Life Insurance Co. of New York	1,951 93	
	Metropolitan Life Insurance Co	2,879 33	
	Northern Life Assurance Co. of Canada	524 19	
	National Life Assurance Co. of Canada	318 61	
	North British & Mercantile Insurance Co	104 48	
	New York Life Insurance Co	2,189 79	
	North American Life Assurance Co	4,708 74	
	Mutual Life Assurance Co. of Canada	6,315 38	
	Provident Savings Life Assurance Soc. of New York	223 07	
	Royal Victoria Life Insurance Co	319 99	
	Royal Insurance Co	30 77	
	Sun Life Assurance Co. of Canada	5,291 92	
	Star Life Assurance Society	212 98	
	Standard Life Assurance Co	3,154 31	
	Scottish Amicable Life Assurance Co	33 78	
	Travellers Insurance Co. of Hartford, Conn	1,163 34	
	United States Life Insurance Co	147 59	
	Union Mutual Life Insurance Co	203 47	
	Ætna Insurance Co. of Hartford, Conn	441 92	
Fire Insurance Cos	Alliance Assurance Co	305 25	
	Atlas Assurance Co	577 44	
	Canadian Fire Insurance Co	185 29	
	British-America Assurance Co	1,533 15	
	Caledonian Insurance Co	702 91	
	Commercial Union Assurance Co	998 03	
	Connecticut Fire Insurance Co	93 16	
	Guardian Fire & Life Assurance Co	935 61	
	Hartford Fire Insurance Co	666 02	
	Insurance Co. of North America	372 31	
	Imperial Insurance Co., Limited	624 22	
	Quebec Fire Assurance Co	167 96	
	London & Lancashire Fire Insurance Co	751 73	
	Law Union & Crown Insurance Co	107 64	
	London Assurance Corporation	315 82	
	London Mutual Fire Insurance Co	818 49	
	Liverpool & London & Globe Insurance Co	1,078 36	
	Mercantile Fire Insurance Co	447 46	
	Manchester Fire Assurance Co	809 62	
	Norwich Union Fire Insurance Society	1,081 31	
	North British & Mercantile Insurance Co	1,337 29	
	National Assurance Co. of Ireland	419 54	
	Northern Assurance Co	1,000 77	
	Phœnix Assurance Co of London	1,008 96	
	Phenix Insurance Co. of Brooklyn, N.Y	249 88	
	Phœnix Insurance Co of Hartford, Conn	170 85	
	Carried forward	86,311 50	

No 12

STATEMENT OF REVENUE.—*Continued.*

Under 62 Vic. Cap. 8; 63 Vic. Cap. 6.

From whom received.	Service.	$ c.	$ c.
	Carried forward	86,311 50	
Fire Insurance Cos	Queen Insurance Co. of America	943 56	
	Royal Insurance Co	2,292 86	
	Scottish Union & National Insurance Co	558 39	
Sundry Insurance Cos. paying also an assessment under The Ontario Insurance Cos. Act	Sun Insurance Office	524 21	
	Union Assurance Society of London, Eng	540 69	
	Western Assurance Co	1,695 53	
	Ottawa Fire Insurance Co	321 77	
	Anglo-American Fire Insurance Co	974 95	
	Berlin Mutual Fire Insurance Co	191 53	
	Economical Mutual Fire Insurance Co of Berlin	275 12	
	Equity Fire Insurance Co	437 64	
	Continental Life Insurance Co	508 36	
	Central Life Insurance Co	38 54	
	Excelsior Life Insurance Co	1,062 71	
	Fire Insurance Exchange Corporation	48 01	
	Gore District Mutual Fire Insurance Co	138 03	
	Hand in Hand Insurance Co	83 88	
	Merchants Fire Insurance	189 51	
	Perth Mutual Fire Insurance Co	148 75	
	Peoples Life Insurance Co	289 37	
	Queen City Fire Insurance Co	156 83	
	Waterloo Mutual Fire Insurance Co	203 77	
	Wellington Mutual Fire Insurance Co	80 26	
	Millers and Manufacturers Insurance Co	21 17	
	York Mutual Fire Ins. Co	122 22	
	Traders Fire Insurance Co	85 26	
Miscellaneous	American Surety Co. of New York	31 62	
	Boiler Inspection & Insurance Co. of Canada	140 04	
	British & Foreign Marine Insurance Co	17 07	
	Canada Accident Assurance Co	100 49	
	Canadian Railway Accident Insurance Co	326 89	
	Dominion Plate Glass Insurance Co	58 10	
	Dominion Burglary Guarantee Co	18 51	
	Dominion of Canada Guarantee & Accident Ins. Co.	403 29	
	Employers Liability Assurance Corporation, Ltd	391 45	
	Fireman's Fund Insurance Co	62 09	
	Guarantee Company of North America	68 54	
	London Guarantee and Accident Co	306 99	
	Lloyds Plate Glass Insurance Co	151 65	
	Mannheim Insurance Co	22 81	
	Ontario Accident Insurance Co	437 95	
	Ocean Accident and Guarantee Corporation	526 79	
	Reliance Marine Insurance Co	7 27	
	Travellers Insurance Co. of Hartford, Conn	111 35	
	Thames and Mersey Marine Insurance Co	63 41	
	Union Marine Insurance Co., Ltd	43 97	
	New York Plate Glass Insurance Co	9 32	
			101,544 02
Banks	Bank of Toronto	2,575 00	
	Canadian Bank of Commerce	4,525 00	
	Dominion Bank	2,575 00	
	Ontario Bank	1,843 00	
	Standard Bank	1,550 00	
	Imperial Bank of Canada	2,600 00	
	Traders Bank of Canada	2,096 97	
	Bank of Hamilton	2,725 00	
	Bank of Ottawa	2,575 00	
	Western Bank of Canada	768 23	
	Bank of Montreal	3,650 00	
	Bank of British North America	2,975 00	
	Molsons Bank	2,825 00	
	Merchants Bank of Canada	4,125 00	
	Quebec Bank	1,425 00	
	Carried forward	38,833 20	101,544 02

No. 12.

STATEMENT OF REVENUE—*Continued.*

Under 62 Vic. Chap. 8; 63 Vic. Chap. 6.

From whom received.	Service.	$ c	$ c.
	Brought forward	38,833 20	101,544 02
Banks	Union Bank of Canada	2,350 00	
	Banque d' Hochelaga	850 00	
	Banque Nationale	700 00	
	Bank of Nova Scotia	1,200 00	
	Royal Bank of Canada	1,100 00	
			45,033 20
Trust Companies	National Trust Co. of Ontario (Ltd)	1,335 00	
	Imperial Trust Co. of Canada	250 00	
	London & Western Trusts Co. (Ltd)	250 00	
	Toronto General Trusts Corporation	1,395 00	
	Trusts & Guarantee Co. (Ltd)	575 00	
	Ottawa Trust & Deposit Co. (Ltd)	315 00	
	Canada Trust Co	315 00	
	Union Trust Co	510 00	
			4,885 00
Loan Companies	Acme Loan & Savings Co	65 00	
	Agricultural Savings & Loan Co	410 15	
	Atlas Loan Co	195 00	
	Barrie Loan & Savings Co. (Ltd)	76 70	
	Birkbeck Loan Co	65 00	
	British Canadian Loan & Investment Co. (Ltd)	259 35	
	British Mortgage Loan Co. of Ontario	267 80	
	Brockville Loan & Savings Co	117 65	
	Canada Landed & National Investment Co	652 60	
	Canada Permanent & Western Can Mtge Corpn	3,868 80	
	Canadian Birkbeck Investment & Savings Co	503 75	
	Canadian Homestead Loan & Savings Association	65 00	
	Canadian Savings, Loan & Building Association	211 90	
	Canadian Savings & Loan Co of London, Can	487 50	
	Central Canada Loan & Savings Co	812 50	
	Chatham Loan & Savings Co	174 20	
	Colonial Investment & Loan Co	663 00	
	Credit Foncier Franco-Canadien for Ontario	443 30	
	Crown Savings & Loan Co	126 75	
	Dominion Permanent Loan Co	469 90	
	Dominion Savings & Investment Society	607 75	
	East Lambton Farmers Loan & Savings Co	96 85	
	Elgin Loan & Savings Co	154 70	
	Empire Loan & Savings Co	65 00	
	Frontenac Loan & Investment Society	130 00	
	Grey and Bruce Loan Co	162 50	
	Globe Savings & Loan Co	216 58	
	Guelph and Ontario Investment & Savings Co	288 60	
	Hamilton Mutual Building Society	65 00	
	Hamilton Provident & Loan Society	715 00	
	Hastings Loan & Investment Co	144 30	
	Home Building & Savings Association	31 85	
	Home Savings & Loan Co	130 00	
	Huron and Bruce Loan & Investment Co	117 65	
	Huron and Erie Loan & Savings Co	910 00	
	Huron and Lambton Loan & Savings Co	218 40	
	Imperial Loan & Investment Co. of Canada	477 75	
	Industrial Mortgage & Savings Co (Ltd)	255 45	
	Lambton Loan & Investment Co	325 00	
	Landed Banking & Loan Co	455 00	
	London & Canadian Loan & Agency Co. of Canada	635 70	
	London Loan Co. of Canada	441 35	
	Metropolitan Loan & Savings Co	202 15	
	Midland Loan & Savings Co	234 00	
	Ontario Building & Savings Society	162 50	
	Ontario Loan & Debenture Co	780 00	
	Ontario Loan & Savings Co	195 00	
	Ontario Permanent Building & Loan Association	401 05	
	Owen Sound Building & Savings Society	65 00	
	Carried forward	18,619 38	151,462 22

No 12

STATEMENT OF REVENUE.—*Continued.*

Under 62 Vic. Cap. 8; 63 Vic. Cap. 6.

From whom received.	Service.	$ c	$ c.
	Brought forward	18,619 38	151,462 22
Loan Companies	Oxford Permanent Loan & Savings Society	157 30	
	Peoples Building & Loan Ass'n of London, Canada.	243 10	
	Provincial Building & Loan Association	442 65	
	Provident Investment Co (Ltd)	520 00	
	Real Estate Loan Co. of Canada (Ltd)	243 10	
	Reliance Loan & Savings Co. of Ontario	559 65	
	Royal Loan & Savings Co.	325 00	
	Security Loan & Savings Co	178 75	
	Simcoe Loan & Savings Co	68 90	
	Southwestern Farmers & Mechanics Savings & Loan Society	126 10	
	Southern Loan & Savings Co	260 00	
	Standard Loan Co	112 45	
	Star Loan Co.	164 45	
	Stratford Building & Savings Society	65 00	
	Sun Savings & Loan Co	194 35	
	Toronto Land & Investment Corporation	158 60	
	Toronto Mortgage Co	471 25	
	Toronto Savings & Loan Co.	390 00	
	Victoria Loan & Savings Co.	77 35	
	Walkerville Land & Building Co (Ltd)	325 00	
	York County Loan & Savings Co	593 45	
	Scottish American Investment Co.	166 40	
	Scottish Ontario & Manitoba Land Co.	209 95	
	North British Canadian Investment Co	316 55	
	North of Scotland Canadian Mortgage Co	474 50	
	Trust & Loan Co. of Canada	1,028 80	
			26,491 53
Railway Companies	Bay of Quinte Ry	326 12	
	Thousand Islands Ry	31 65	
	Kingston & Pembroke Ry	523 00	
	Brockville, Westport & Sault Ste. Marie Ry.	225 00	
	Central Ontario Ry	673 00	
	Canadian Northern Ry	427 50	
	Grand Trunk Ry	13,275 95	
	Canada Atlantic Ry	1,957 18	
	Nosbonsing & Nipissing Ry	27 50	
	Canada Southern Ry	1,970 95	
	Ottawa & New York Ry	275 00	
	Niagara, St Catharines & Toronto Ry	95 00	
	Tilsonburg, Lake Erie & Pacific Ry	98 75	
	Lake Erie & Detroit River Ry	1,123 12	
	Toronto, Hamilton & Buffalo Ry	418 30	
	Canadian Pacific Ry	12,204 78	
			33,592 80
Street Railways	Port Dalhousie, St. Catharines & Thorold Elec. Ry.	133 00	
	Sandwich, Windsor & Amherstburg Ry	82 50	
	Hamilton & Dundas Street Ry	13 63	
	London Street Ry	343 60	
	Hamilton, Grimsby & Beamsville Electric Ry	30 00	
	Hamilton Street Ry	380 24	
	Kingston, Portsmouth & Cataraqui Electric Ry.	120 54	
	Toronto & Mimico Electric Ry. & Light Co (Ltd).	32 88	
	Toronto Ry. Co.	4,748 14	
	Toronto & Scarborough Elec. Ry., Light & Power Co	76	
	Brantford Street Ry. Co	118 00	
	Ottawa Electric Street Ry Co	791 03	
	Hamilton Radial Electric Ry. Co	48 48	
	City Ry. Co. of Windsor	30 00	
	Guelph Street Ry	110 00	
	Metropolitan Ry. Co	5 68	
	Woodstock, Thames Valley & Ingersoll Elec Ry.	33 76	
			7,022 24
	Carried forward		218,568 79

No 12

STATEMENT OF REVENUE.—*Concluded.*

Under 62 Vic. Cap. 8: 63 Vic. Cap. 6.

From whom received.	Service.	$ c.	$ c.
	Brought forward		218,568 79
Express Companies	American Express Co	925 00	
	Canadian Express Co	1,800 00	
	Dominion Express Co	1,675 00	
			4,400 00
Parlor Car Companies	Pullman Palace Car Co		1,124 09
Natural Gas Companies	Provincial Natural Gas & Fuel Co. of Ontario	2,547 74	
	United Gas & Oil Co. of Canada (Ltd)	3,761 21	
			6,308 95
Gas & Elec. Light Co's	Toronto Electric Light Co	2,000 00	
	Incandescent Light Co. of Toronto	619 35	
	Brantford Gas Co. (Ltd)	59 40	
	City Gas Co. of London	240 00	
	Windsor Gas Co	50 00	
	People's Electric Light Co. (Ltd)	35 00	
	St. Thomas Gas & Electric Light Co	80 00	
	Chatham Gas Co. (Ltd)	70 00	
	Hamilton Electric Light & Power Co. (Ltd)	250 00	
	London Electric Co. (Ltd)	344 50	
	Belleville Gas Co. (Ltd)	80 00	
	Ottawa Electric Co	1,000 00	
	Guelph Light & Power Co	100 00	
	Brantford Electric & Operating Co. (Ltd)	110 20	
	Hamilton Gas Light Company	255 00	
	Kingston Electric Light, Heat & Power Co	120 82	
	Ottawa Gas Co.	446 60	
	Stratford Gas Co	70 26	
	Consumers' Gas Co	1,750 00	
	Trenton Electric & Water Co	30 00	
	Woodstock Gas Co	70 00	
	Lincoln Light & Power Co	125 80	
			7,906 93
Telegraph Companies	North American Telegraph Co	100 00	
	Great North Western Telegraph Co / Montreal Telegraph Co	717 24	
	Dominion Telegraph Co	475 00	
			1,292 24
Telephone Companies	Bell Telephone Co. of Canada	6,250 00	
	North American Telegraph Co	125 00	
			6,375 00
			245,976 00

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, February 15th, 1903.

C. H. SPROULE,
Provincial Auditor.

No. 13.

CASUAL REVENUE.

From whom received.	Service.	$ c.	$ c.
Clerks of the Peace—			
Bruce	Fines and forfeitures	19 20	
Carleton	do	88 80	
Essex	do	257 82	
Frontenac	do	71 25	
Grey	do	11 18	
Halton	do	5 62	
Huron	do	10 77	
Kent	do	445 90	
Lanark	do	4 62	
Leeds and Grenville	do	2 97	
Lincoln	do	5 56	
Middlesex	do	266 67	
Manitoulin District	do	10 45	
Muskoka do	do	55 68	
Nipissing do	do	155 52	
Ontario	do	1,100 00	
Parry Sound District	do	98 06	
Peel	do	24 00	
Prescott and Russell	do	28 50	
Prince Edward	do	14 40	
Rainy River District	do	21 12	
Toronto City	do	192 00	
Waterloo	do	19 60	
Welland	do	433 92	
Wellington	do	20 60	
Wentworth	do	156 48	
A. Logan, P.M., Niagara Falls	do	269 75	
W. A. Quibell, P.M., Sudbury	do	753 00	
C. J. Hollands, P. M., Fort Francis	do	65 00	
Geo. Burden, P. M., Sault Ste. Marie	do	220 00	
W. C. Dobie, P.M., Port Arthur	do	12 00	
L. K. Murton, P.M., Oshawa	do	25 00	
Samuel McGee, P.M	do	5 00	
G. F. Jelfs, P.M., Hamilton	do	98 00	
L. A. Smith, P.M., Carleton	do	39 33	
James Robinson, P.M	do	25 00	
Wm. Young, P.M., Rat Portage	do	495 00	
W. P. Lett, P.C.C., Ottawa	do	956 00	
George Menzies, P. C. C., Owen Sound	do	6 00	
S. R. Armstrong, P.C.C., Peterborough	do	49 85	
P. C. Campbell, J.P	do	20 00	
D. G. Ripley, J.P., Westport	do	5 00	
C. Seager, J.P., Goderich	do	2 00	
J. R. Brown, Factories Inspector	do	20 00	
A. Jaffray, Bursar Central Prison	do	145 00	
		25 00	
Department Trade and Commerce, Ottawa	*Re* Chinese immigration		6,756 62
			525 00
T. J. Bourke, Loc. Reg., Nipissing	Jury fees	24 00	
W. H. Carney, Sheriff, Algoma	do	28 50	
			52 50
County of York	*Re* Land Titles Office, 1901		216 83
Counties Crown Attorney	Surplus fees, 57 Vic. cap. 9, Secs. 8 and 9	444 73	
Registrars of Deeds	do 57 Vic. cap. 9, sec. 4	1,689 45	
Deputy Clerks of the Crown	do 57 Vic. cap. 9, sec. 6	1,881 68	
Local Registrars, H.C.J	do do	1,253 33	
Clerks County Court	do do	95 22	
Registrars Surrogate Court	do do	6,036 43	
Clerks Division Court	do do	4,559 73	15,960 57
Carried forward			23,511 52

No 13

CASUAL REVENUE.—*Concluded.*

From whom received.	Service.	$ c.	$ c.
	Brought forward		23,511 52
Insurance Branch	Ontario Insurance Act—		
	Insurance Company Register	17,559 08	
	Friendly Society do	771 00	
	Miscellaneous	585 80	
	Loan Corporations Act—		
	Loan Companies Register	7,075 00	
	Loaning Land Companies Register	700 00	
	Trusts Companies do	975 00	
	Miscellaneous	1,164 87	
			28,830 75
Provincial Game Warden	Deer hunting licenses	9,396 98	
	Non-resident do	4,900 50	
	Moose do	728 00	
	Game dealers do	464 15	
	Hotel and cold storage licenses	244 00	
	Fines and confiscations	1,444 74	
			17,178 37
Sundry persons	Circus licenses		2,591 00
Warwick Bros. & Rutter	Official *Gazette*		9,172 21
Clerk Legislative Assembly	Private Bills		8,846 80
King's Printer	Sale of Statutes		1,026 89
	do Rules of Practice		23 20
	do B.N.A. Act		10 50
Treasurers of Counties	Removal of lunatics		4,418 38
A. Pardoe, Librarian	Sundry persons—lost books		6 30
Temiskaming and Northern Ontario Railway	Refund Expenditure 1901		9,461 10
Judge Barron	Refund *re* Miscellaneous Exp		400 00
Estate W. A. McLean	Refund *re* salary as Loc. Mas		70 00
Provincial Board Health	Sale of Health Act		8 75
Irondale, Bancroft & Ottawa Ry.	Deposited to meet claims against this road	5,800 00	
	Less paid on account	1,405 45	
			4,394 55
			109,950 32

C. H. SPROULE,
Provincial Auditor.

Provincial Auditor's Office,
Toronto, February 15th, 1903.

—	—	$ c.	$ c.
	Balance of stock on hand, December 31st, 1901		9,740 01
Davis & Henderson	Stationery	1,132 71	
do	Paper	27 35	
Buntin, Reid & Co	Stationery	2,230 40	
do	Paper	720 62	
Barber, Ellis Co'y	Stationery	2,925 01	
Brown Bros	do	3,015 25	
Donald Bain & Co	do	76 75	
J. Underwood & Co	do	10 80	
Grand & Toy	do	258 40	
O. S. James	do	62 40	
Warwick Bro's & Rutter	do	248 12	
do	Paper	4,608 53	
Ritchie & Ramsay	do	138 65	
do	Stationery	676 86	
Kilgour Bros	do	1,293 26	
do	Paper	323 00	
Carters Ink Co	Typewriters' supplies	4 50	
Can. Typewriter Exchange	do	221 57	
Creelman Bros. Typewriter Co	do	158 63	
Remington Typewriter Co	do	10 50	
Hunter, Rose & Co	do	393 50	
Canadian Typewriter Co	do	20 40	
Colonial Typewriter Co	do	15 25	
Harold A. Wilson Co'y	Canadian Almanacs	87 50	
do	Paper	7 00	
Safety Bottle and Ink Co	Safety paste and ink	61 05	
Trunk and Leather Goods Co	Leather goods	12 00	
Rice, Lewis & Son	Letter seals	8 30	
Rose Publishing Co	Reporters' note books and pads	587 88	
Rolph, Smith & Co	Stationery, stamping letter pads, etc	89 09	
Art Metropole	Brushes, pencils, squares, etc	28 40	
Newsome & Gilbert	Expanding cases	4 25	
Hobbs Hardware Co	Knives, shears, purses, etc.	1,382 50	
C. Gripton	Stamp ink	4 80	
United Factories	Whisks	26 00	
G. J. Castle	Copy holders	31 50	
Elliott & Co	Soap, combs, brushes and camphor	38 75	
Vannevar & Co	Fountain pens	9 00	

—	$ c.	$ c.
Distribution for twelve months ended November 30th, 1902:		
Civil Government—		
Attorney-General's Department, stationery	391 21	
do paper	58 66	
Education Department, stationery	739 76	
do paper	43 76	
Crown Lands Department, stationery	2,438 27	
do paper	653 63	
Colonization and Forestry, stationery	124 94	
do paper	9 25	
Bureau of Mines, stationery	223 41	
do paper	36 58	
Public Works Department, stationery	655 19	
do paper	58 46	
Treasury Department, stationery	431 89	
do paper	106 87	
Provincial Auditor's Office, stationery	140 80	
do paper	28 43	
Provincial Secretary's Department, stationery	827 36	
do paper	283 71	
Public Institutions, stationery	241 37	
do paper	53 31	
Audit of License and Justice Accounts, stationery	60 72	
Registrar-General's Branch, stationery	350 72	
do paper	115 16	
Provincial Board of Health, stationery	140 99	
do paper	23 78	
Department of Agriculture, stationery	263 49	
do paper	45 47	
Insurance Branch, stationery	86 20	
do paper	24 09	
Neglected Children's Branch, stationery	146 19	
do paper	11 71	
King's Printer, stationery	4 17	
do paper	28	
Registry Offices, stationery	5 75	
		8,825 58
Legislation—		
Stationery, printing and binding, stationery	1,971 71	

No. 14.—GOVERNMENT STATIONERY OFFICE.—*Continued.*

—	—	$ c.	$ c.
O. B. Stanton & Co	Brushes	52 80	
F. B. Young	Pens	34 80	
		21,051 08	
	Less received from sales of stationery	102 80	
			20,948 28

—	$ c.	$ c.
Expenses, stationery	620 50	
do paper	1 60	
Library, stationery	85 93	
do paper	9 88	
		2,689 62
Administration of Justice—		
Supreme Court of Judicature, stationery	202 87	
do paper	79	
Court of Appeal, stationery	133 89	
do paper	15 66	
High Court, stationery	26 30	
do paper	12 01	
Central Office, stationery	140 90	
do paper	14 52	
Registrar's Office, stationery	284 81	
do paper	25 39	
Weekly Court, stationery	12 40	
Surrogate Office, do	67 86	
do paper	6 83	
Division Court, stationery	61 63	
do paper	17 64	
Land Titles Office, stationery	53 46	
do paper	2 60	
Local Masters of Titles, stationery	31 75	
do paper	26 16	
Drainage Act, stationery	127 90	
Algoma District, do	28 50	
Nipissing District, stationery	31 20	
Legal Offices, stationery	22 80	
do paper	7 08	
		1,355 04
Education—		
Public School Leaving and Continuation Classes, paper	8 55	
Normal and Model Schools, Toronto, stationery	145 62	
do paper	67 51	
do Ottawa, stationery	2 25	
do paper	9 20	
do London, paper	4 91	
Public Schools Inspection, stationery	166 50	
do paper	15 07	
Departmental Examinations, stationery	1,025 39	
do paper	110 09	

Education.—*Continued.*		
High School Inspection, stationery	15 46	
do paper	10 88	
Separate School Inspection, stationery	30 15	
do paper	55 33	
Ontario Normal College, do	2 58	
Library and Museum, stationery	8 00	
do paper	12 13	
Public Libraries, paper	13 43	
Art Schools Examinations, paper	105 38	
Technical Education, stationery	32 99	
Miscellaneous, paper	563 41	
Superannuated Teachers, paper	2 42	
School of Practical Science, stationery	186 92	
do paper	1 15	
Teachers' Institutes, paper	2 15	
Poor Schools do	80	
		2,598 27
Public Institutions Maintenance—		
Asylum for Insane, Toronto, stationery	107 28	
do do paper	41 22	
do London, stationery	30 82	
do Mimico, do	169 80	
do do paper	62 90	
do Orillia, stationery	18 05	
do do paper	13 71	
do Hamilton, do	52	
do Brockville, do	53	
do Kingston, do	53	
do Cobourg, stationery	39 50	
do do paper	85 37	
Central Prison, Toronto, stationery	91 53	
do paper	14 33	
Deaf and Dumb Institute, stationery	315 38	
Mercer Reformatory, do	65 67	
do paper	24 69	
Reformatory for Boys, stationery	55 09	
do paper	3 60	
		1,140 52
Agriculture—		
Farmers' Institutes, stationery	109 58	
do paper	5 73	
Incidentals, stationery	743 40	
do paper	499 08	
Agricultural College, stationery	10 00	
Bureau of Industries, do	130 20	
do paper	126 31	
Dairy School, Kingston, stationery		

No. 14.—GOVERNMENT STATIONERY OFFICE. —*Concluded.*

—	—	$ c.	$ c.	—	$ c.	$ c.
				San Jose Scale, stationery	15 70	
						1,640 62
				Repairs and Maintenance—		
				New Parliament Buildings, stationery	22 00	
				do toilet paper	26 50	
				School of Practical Science, paper	10 00	
						58 50
				Charges on Crown Lands—		
				Forest Reserve		8 43
				Miscellaneous—		
				Charges on Revenue, stationery	293 39	
				do paper	169 27	
				Expenses of Elections, stationery	138 44	
				do paper	834 72	
				Factory Inspection, stationery	82 73	
				Arbitration, stationery	5 25	
				Game Inspection, stationery	31 00	
				do paper	98 20	
				Colonization Pamphlets, etc., paper	1 02	
				Algonquin Park, stationery	13 65	
				do paper	2 03	
				Fisheries, stationery	261 56	
				do paper	54 45	
				Municipal Auditor, stationery	39 35	
				Labor Bureau, stationery	55 21	
				do paper	14 30	
				Assessment Commission, stationery	40	
				Pan American do	6 61	
				Succession Duties, stationery	157 47	
				do paper	5 87	
				Manhood Suffrage Registration, paper	133 59	
				Rondeau Park, stationery	3 25	
				Liquor Act, stationery	1,168 36	
						3,570 12
						21,886 70
				Balance stock on hand		8,801 59
	Total		30,688 29	Total		30,688 29

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, February 15th, 1903.

C. H. SPROULE,
Provincial Auditor.

No 15

Statement showing amounts payable annually for certificates issued by the Treasurer of the Province of Ontario for "Aid to Railways" and "Annuities."

Year.	Railway Aid Certificates.	Annuities.	Year.	Railway Aid Certificates.	Annuities.
	$ c.	$ c.		$ c.	$ c.
1903	113,672 65	102,900 00	*Forward*	2,378,819 85	2,160,900 00
1904	113,257 36	102,900 00	1924	113,257 36	96,200 00
1905	113,257 36	102,900 00	1925	113,257 36	82,500 00
1906	113,257 36	102,900 00	1926	113,257 36	69,350 00
1907	113,257 36	102,900 00	1927	113,257 36	56,950 00
1908	113,257 36	102,900 00	1928	113,257 36	50,700 00
1909	113,257 36	102,900 00	1929	113,257 36	50,700 00
1910	113,257 36	102,900 00	1930	112,557 76	50,700 00
1911	113,257 36	102,900 00	1931	109,059 76	43,700 00
1912	113,257 36	102,900 00	1932	102,063 76	32,700 00
1913	113,257 36	102,900 00	1933	99,265 36	28,700 00
1914	113,257 36	102,900 00	1934	97,166 56	28,700 00
1915	113,257 36	102,900 00	1935	85,273 36	24,700 00
1916	113,257 36	102,900 00	1936	79,234 83	16,700 00
1917	113,257 36	102,900 00	1937	68,604 62	9,200 00
1918	113,257 36	102,900 00	1938	65,106 62	2,850 00
1919	113,257 36	102,900 00	1939	60,267 17	
1920	113,257 36	102,900 00	1940	56,383 84	
1921	113,257 36	102,900 00	1941	42,088 57	
1922	113,257 36	102,900 00	1942	5,963 22	
1923	113,257 36	102,900 00			
Forward	2,378,819 85	2,160,900 00	Totals	4,041,399 44	2,805,250 00

NOTE.—Present value of Railway Certificates (interest 1¾ per cent half yearly) $2,290,122 25
do Annuities do 1¾ do 1,732,631 29

PROVINCIAL AUDITOR'S OFFICE,
Toronto, January 9th, 1903.

C. H. SPROULE,
Provincial Auditor.

EXPENDITURE STATEMENT.

STATEMENT OF THE EXPENDITURE by the Treasurer of Ontario during the year ended 31st December, 1902.

CIVIL GOVERNMENT.

LIEUTENANT-GOVERNOR'S OFFICE.

SALARIES ($2,305.00.)

F. C. Law	Twelve months' salary as	Official Secretary	$1,200 00
J. H. Elmsley	Three and two-thirds months' salary as	A.D.C. to Lieut.-Governor	122 55
C. T. Straubenzie	Four do	do	133 00
J. H. Kaye	Four and one-third do	do	144 45
F. B. Reade	Twelve do	Stenographer (half-time)	225 00
Thos. Lymer	do	Messenger	480 00

EXPENSES ($1,597.00.)

F. C. Law	To pay sundries	1,500 00
E. J. Rowley	Portfolio of portraits of Governors, Lieutenant-Governors and Administrators of the Province	25 00
A. Meyer	Services as Stenographer	24 00
M. O. Norris	do	48 00

EXECUTIVE COUNCIL AND ATTORNEY-GENERAL'S DEPARTMENT.

SALARIES ($15,332.54.)

Hon. J. M. Gibson	Twelve months' salary as	Attorney-General	4,000 00
J. R. Cartwright	do	Clerk Ex. Council and Dep. Atty.-General	3,000 00
J. Lonsdale Capreol	do	Assistant Clerk Executive Council	1,650 00
A. M. Dymond	do	Law Secretary of Department	800 00
Frank Ford	Nine and one-fourth months' salary as	Law Clerk and Atty.-General's Secretary	1,234 07
M. Currey	Two and two-thirds months' salary as	Clerk and Att'y-General's Secy.	334 58
do	Nine and one-third do	Clerk and Stenographer	1,011 11
C. A. Fitch	Two and two-thirds do	do	245 06
do	Nine and one-third do	Clerk	777 77
Wm. Marseilles	do do	Clerk and Asst. Secretary	544 44
do	Two and two-thirds do	Clerk	224 10
C. E. Bulmer	Nine and one-third do	do	581 83
do	Two and two-thirds do	do	179 58
C. S. Berthon	Twelve months' salary as	Stenographer, Law Clerk's office (one-third time)	150 00
C. H. Chase	do	Messenger and Caretaker	600 00

EXPENSES ($2,261.90)

Warwick Bros. & Rutter: Printing and binding, 116 23; L K. Cameron: Stationery, 391.21.	507 44
L. K. Cameron: Paper, 58.66 ; Rolph, Smith & Co.: Stamping, 38.51	97 17
G.N.W. Telegraph Co.: Telegrams, 112.49 ; C.P.R. Co.'s Telegraph: Telegrams, 97.61	210 10
Bell Telephone Co.: Messages, 41.25 ; Mrs. Hubertus: Postage stamps, 340.00	381 25
A. G. Magurn, Parliamentary Guide, 2.00 ; Might Directories. Directories, 10.00	12 00
H. Vernon: Hamilton directory, 2.50 ; Circuit Guide Pub. Co.: Copies Guide, 3.00	5 50
Can. Legal Pub. Co.: Legal Cht. and Law Lists, 9.25; Can. Law B'k Co: Annual Digest, 3.50	12 75
Can. Law Book Co.: Law books, 69.70 ; Carswell Co.: Ontario Digest, 16.00	85 70
Carswell Co.: Law books, 70.15 ; Edward Thompson Co.: Encyclopedia, 3 vols., 18.00	81 15
W. Briggs: Book, 1.50 ; R Finchamp: Book, 4 00 ; C. Durand, Book, 2.00	7 50
A. Britnell: Book, 2.00 ; B. Nicholson: Book, 4.10 ; Can. Railway News Co.: Books, 3.00.	9 10
A. McKim & Co.: Book, 2.00; C. Robertson & Co.: Book, 4.00; E. L. Ruddy: Hist. Q.O R., 5.00	11 00
Sec. Law Society: Certificate for D. A. G., 17.00; Am. Forestry Association: Dues, 2.00.	19 00
G. J. Castle: Copyholder, 3,50 ; Canadian Transfer Co.: Cartage, 50c	4 00
Duggan Bros.: Cartage, 2.50 ; Can. Ex. Co.: Charges, 4.05; Dom. Ex. Co.: Charges, 1.75.	8 30
Doane Bros.: Cab hire, 59.00; P. Maher: Cab hire, 18.00; Can Transfer Co.: Cab hire, 6 00	83 00
J. O'Leary: Cab hire, 1.25 ; R. Bond: Cab hire, 1.50 ; G. W. Verral: Cab hire, 18.50	21 25
A. Millard: Cab hire, 9.00 ; Toronto Railway Co.: Car tickets, 40.00	49 00
Hon. J. M. Gibson: Travelling expenses, 133 75 ; Frank Ford Travelling expenses, 83 70.	217 45
W. Marseilles: Travelling expenses, 7 00 ; J. R. Cartwright: Travelling expenses, 38.05	45 05
Can. Typewriter Exch'nge: Supplies and repairs, 12.00; C. Tarling & Co.: Mounting map, 2.90	14 90
E. H. Brown: Services during illness W. Marseilles	25 00
J. E. Rockwell: Services at $12 per week	26 00
W. O'Grady: Services at 7.00 per week, 63 00 ; E. B. Brown: Copy of judgments, 4.64.	67 64
Registrar Surrogate Court: Fees *re* escheated estate of lunatics	19 83
D. F. Tolchard: Lunches for messengers during session	17 15
C. A. Fitch: Petty office expenses, 10.00: Sundry persons: Messenger services, 5.00	15 00
Sundry newspapers: Subscriptions	201 67

CIVIL GOVERNMENT.—*Continued.*

EDUCATION DEPARTMENT.

Salaries ($17,950.00).

Hon. R. Harcourt	Twelve months'	salary as Minister of Education	$4,000 00
John Millar	do	Deputy Minister of Education	2,500 00
H. R. Alley	do	Clerk and Minister's Secretary	1,500 00
J. T. R. Stinson	do	Clerk	1,350 00
H. M. Wilkinson	do	do	1,350 00
A. C. Paull	do	do	1,200 00
F. N Nudel	do	do	1,100 00
T. F. Callaghan	do	do	1,200 00
R. J. Bryce	do	do	800 00
T. J. Greene	do	do	750 00
Allen Ker	do	Clerk and Stenographer	700 00
E. H. Brown	do	Stenographer	500 00
F. Woodley	do	Clerk and Messenger	500 00
L. McCorkindale	do	Caretaker	500 00

Expenses ($1,865.12).

Warwick Bro's & Rutter: Prtg and binding, 91.65; Rolph Smith & Co: Stamping, 29.50	121 15
L K. Cameron: Paper, 43 76; stationery, 739.76; Brown Bros: Stationery, 8.13	791 65
Bain Book & Stationery Co: Stationery, 1.35; Wm. Tyrrell & Co: Stationery, 1.40	2 75
Grand & Toy: Stationery, 1.25; Mrs. Hubertus: Postage stamps, 38.89; W. McMaster: Postage stamps, 200 00	240 14
Postmaster: Unpaid postage, 3 86; Aikenhead Hardware: Erasers, 2.65	6 51
G.N.W. Tel Co: Telegrams, 71.02; C P.R. Co's Telegraph: Telegrams, 27.59	98 61
Bell Telephone Co: Messages, 12.00; Might Directories: Directories, 15.00	27 00
Can Legal Pub Co: Law lists, 4.00; Dept Public Printing: Postal Guides, 3 30	7 30
Funk & Wagnalls: Literary Digest, 3.00; W. Brigg: Book, 1.50	4 50
R Finchamp: Book, 4.00; Wm Tyrrell & Co: Book, 1.45	5 45
Trunk & Leather Goods Co: Despatch bag, 7.50; Creelman Bros: Rent of typewriter, 2.00	9 50
T. Eaton Co: Bicycle for messenger, 25 00; Can Typewriter Exc: Rep and supplies, 30.50	55 50
Newsome & Gilbert: Repairs and supplies, 9.75; Geo J. Castle: Copy holders, 12.00	21 75
Doane Bros: Cab hire, 40.25; G. W. Verrall: Cab hire, 5 50	45 75
Can Transfer Co: Crtg, 8.25; Rapid Deliv Co: Crtg, 15.55; W. McCulloch: Crtg, .15	23 95
Can Express Co: Charges, 3 90; Dom Express Co Charges, 2.25	6 15
Toronto Ry Co: Car tickets, 21.25 Hon. R. Harcourt Travelling exp, 73.50	94 75
John Miller: Travelling expenses, 76.15 R H. Macomb: Travelling expenses, 27 05	103 20
G. L Rutherford: Serv tele boy, 17 50; T. Dodd: Stenog'r at $10.00 per wk, 110 00	127 50
L. Ramey: Stenographer, 12.50; International Congress of Americanus: Fee, 3.00	15 50
L. McCorkindale: Petty office expenses, .38 Sundry persons: Messenger service, 1.00	1 38
Sundry newspapers: Advertising, 25.00; Harold A. Wilson Co: Periodicals, etc, 6.15	31 15
Sundry newspapers and magazines: Subscriptions	23 98

CROWN LANDS DEPARTMENT.

Salaries ($39,170 76).

Hon. E. J. Davis	Twelve months'	salary as Commissioner	4,000 00
Aubrey White	do	Assistant Commissioner	3,000 00
Geo. Kennedy	do	Law Clerk	2,100 00
G. W. Yates	do	Clerk and Minister's Secretary	1,200 00
W. A. H. Findlay	Nine do	Secretary of Department	750 00

LAND SALES AND FREE GRANTS.

J. J. Murphy	Twelve months'	salary as Chief Clerk	1,900 00
E. S. Williamson	do	Clerk	1,300 00
W. S. Sutherland	Six do	do	504 43
W. R. Ledger	Twelve do	do	850 00
M. Bengough	do	Stenographer	500 00

SURVEYS AND PATENTS.

G. B. Kirkpatrick	Twelve months'	salary as Director of Surveys	2,200 00
W. Revell	Seven do	Draughtsman	758 00
J. F. Whitson	Two do	Clerk	233 33
W. F. Lewis	Twelve do	do	1,000 00
J. B. Proctor	do	do	750 00
C. S. Jones	do	do of Patents	1,600 00
C. E. Burns	do	do	750 00

CIVIL GOVERNMENT.—*Continued.*

WOODS AND FORESTS.

J. A. G. Crozier	Twelve months'	salary as	Chief Clerk	$1,800 00
T. C. Taylor	do		Clerk	1,450 00
Kenneth Miller	do		do	1,000 00
Alex. McLaren	Nine do		do	675 00
J. B. Cook	Twelve do		do	1,100 00
R. H. Browne	do		do	1,000 00
H. D. Gillard	do		do	750 00

ACCOUNTS BRANCH.

D. G. Ross	Twelve months'	salary as	Accountant	1,800 00
E. Leigh	do		Clerk	1,200 00
M. J. Ferris	do		do	1,050 00
A. Robillard	do		do	800 00
F. Yeigh	do		Registrar	1,500 00
Harry Cartwright	do		Clerk	1,050 00
H. Brophy	do		Messenger and Caretaker	600 00

EXPENSES ($17,551.75).

Warwick Bro's & Rutter: Printing and binding, 1,990.24; L. K. Cameron: Paper, 653 63 — 2,643 87
Riordon Paper Mills: Paper, 33.38; L. K. Cameron: Stationery, 2,132 64 — 2,166 02
Thos. Henry: Blue print paper, 29.65; Geo. J. Castle: Copy holders, 10 50 — 40 15
Rolph, Smith & Co.: Stamping, 95.50; Wm. McMaster: Postage stamps, 1,355.11 — 1,450 61
C. Gripton: Stamps and repairs, 21.50; Davis & Henderson: Transfer binders and paper, 57.00 — 78 50
G.N.W. Telegraph Co: Telegrams, 62.29; C.P.R. Co's Telegraph: Telegrams, 251.19 — 313 48
Bell Telephone Co: Messages, 127 00; Might Directories: Directories, 18 00 — 145 00
J. G. Foster & Co: Directory, 2.00; Circuit Guide Pub Co: Copies Guide, 1.00 — 3 00
Can Legal Pub Co: Legal charts and law lists, 10.50; J. Lovell & Son: Legal compendium, 3.00 — 13 50
Geo. N. Morang & Co: *Monthly Review*, 6 25; J. Mescall: Expert Calendar, 1.00 — 7 25
W. Briggs' Books, 1.50; R. Finchamp. Book, 4.00; Geo. N. Morang & Co' Books, 13.00 — 18 50
B. Nicholson: Book, 3.00; H. H. Revell: Photo supplies, 37.50 — 40 50
C. Tarling & Co: Mounting maps, 39.55; Julian Sale Leather Goods: Despatch bag, 6.50 — 46 05
Can Typewriter Exchange Rent of machines and supplies — 29 00
Creelman Bros' Rent of machines, 63 00; typewriter, 115.00; repairs and supplies, 11.50 — 189 50
Remington Typewriter Co: Repairs and supplies — 14 80
Can Express Co: Charges, 49 43; Dom Express Co: 115.47; Can Trans Co: Cartage, 1.25 — 166 15
Doane Bros: Cab hire, 15.75; P. Maher' 79.75; G. W. Verral' 8.25 — 103 75
Toronto Railway Co: Car tickets, 50.00; Hon. E. J. Davis: Travelling expenses, 79.50 — 129 50
C. S. Jones: Travelling expenses, inspecting, 72.60; Aubrey White: Trav expenses, 11.75 — 84 35
Geo. Kennedy: Travelling expenses — 13 00
Services at 12.00 per week: W. Rannie, 196.00; R. C. Kerswell, 58.00; W. J. Sheridan, 524.00 — 778 00
Frank Howard, 48.00; Alex Reid, 90.00; J. J. Matheson, 132.00 — 270 00
W. J Butler, 76 00; Donald Ross, 294.00; D. A. McCrimmon, 84.00 — 454 00
Services at 14 00 per week: E. M. Jarvis, 730.00; F. J. Niven, 730.00 — 1,460 00
S. Draper, 730.00; W. S. Sutherland, at 17 50 per week, 452.50 — 1,182 50
W. H. Kirkland: At 10.00 per week, 233.33; Edna Best: At 6.00 per week, 236.00 — 469 33
Jules Ferry' At 6.00 per week, 313.00; J. J. Kelly' At 2.50 per day, 782 50 — 1,095 50
Mary Woods: Services — 10 00
Peter Ryan: Auctioneer's fee *re* timber sale, 750 00; G. W. Yates: Extra services, 75.00 — 825 00
C. Wynn: Compensation for improvements, Township Burleigh — 55 00
H. L. Espen: Drafting plans, 143 00; Thos. Robson: Survey and plan, Bell and Hogg Is, 25.75 — 168 75
Geo. Ross' Copy plan, Ordnance Reservation, Niagara River — 10 50
Department of Interior: Copy plan Lake of the Woods — 20 00
H. C. Hamilton: Fees cancellation of patent — 1 00
Thos. Kempsthorne: Compensation, spruce timber cut, Machar — 50 00
J. F. Ruttan: Cartage and freight charges on survey posts — 85
Rice Lewis & Son: Supplies for surveyors, 3 77; Can Forestry Assn: Fee, 2 00 — 5 77
G. W. Yates' Petty Office expenses, 10 00; Sundry persons: Messenger service, 12.00 — 22 00
Sundry newspapers: Advg, 26.00; Sundry newspapers and periodicals: Subscriptions, 323.02 — 349 02
Military Grants:—
Major F. E. Dixon: Stationery, postage, etc, *re* grants to ex-members Q.O.R — 30 00
Warwick Bro's & Rutter: Ptg and binding, 344.15; Riordon Paper Mills: Paper, 106 92 — 451 07
Buntin, Reid & Co: Paper, 15.00; L. K. Cameron: Stationery, 305.63 — 320 63
Rolph, Smith & Co: Stamping, 5.00; W. McMaster: Postage stamps, 300.00 — 305 00
C. Gripton: Stamps & Supplies — 10 00
Services at 12.00 per week: R. T. Winter, 524.00; H. M Passmore, 572.00 — 1,096 00
H. S. Warren, 144 00 — 144 00
Serv. at 10 00 per week: KateJ. Ellis, Stenographer, 110.00; E.O'Neill, 110.00; E.M. Brown, 50.00 — 270 00
Can Express Co: Charges — 1 35

CIVIL GOVERNMENT.—*Continued.*

BUREAU OF MINES.

SALARIES ($3,650.00).

T. W. Gibson	Twelve months'	salary as	Director of Bureau	$2,200 00
W. E. H. Carter	do	do	Secretary	1,000 00
A. Moffatt	do	do	Clerk and Stenographer	450 00

EXPENSES ($2,687.37).

Warwick Bros. & Rutter: Printing & binding, 471 30; Rolph, Smith & Co: stamping, 7.00	478 30
Riordon Paper Mills: Paper, 323.43; L. K. Cameron: Paper, 36.58	360 01
L. K. Cameron: Stationery, 223.41; Geo. J. Castle: Copy-holder, 3.50	226 91
W. McMaster: Postage stamps, 139.48; Am. Iron & Steel Works. Directory, 10 00	149 48
Carswell Co: Report Geological Survey, 2.50; Can. Legal Pub Co: Law List, 2.00	4 50
Might Directories: Directory, 5 00; P. S. King & Son: Parliamentary Reports, 9.06	14 06
Engineering Magazine: Subscription, 6.00; *Journal Geology*, 3.00; *Iron Age*, 5.00	14 00
Money & Risks, 2.00; *School of Mines Quarterly*, 2.00; *Eng. & Mining Journal*, 5.00	9 00
Can. Mining Review, 33.00; Am. Institute Mining Engineers' Dues, 10.00	43 00
London Times: Subscription, 5.00; *N. E. Inst. Mining & Mechanical Engineers*, 10.43	15 43
Books: Linscott Pub Co, 17.50; D. Van Nostrand, 3.40	20 90
E. G. Allen, 2 68; *School of Mines Quarterly*, 2.00	4 68
G. N. W Telegraph: Telegrams, 10.87; C. P. R. Co's Telegraph telegrams, 51.22	62 09
G. T. Railway Co: Freight charges, 1.42; C. P. Railway Co: Freight charges, 11.00	12 42
Can. Transfer Co: Cartage, 3.65; Can. Express Co: Charges, 25 20	28 85
Dom. Express Co: Charges	74 52
T. W. Gibson: Travelling expenses, 53.15; W. E. H. Carter: Travelling expenses, 6.60	59 75
Toronto Lithograph Co Geological maps	361 90
J. G Ramsey & Co: Kodak and supplies, 37.39; J. Bruce: Photo supplies, 16 30	53 69
A. B. Willmott: Article for report, 10 00; E. N. Ridley Services *re* report, 42.00	52 00
Phillips Thompson: Service *re* report, 3.00 per day, 93 00; *Eng. Magazine*: Article, 2.20	95 20
R. B. Struthers: Copy evidence *re* inquests	8 00
P. Quiggley, cleaning rooms in basement	1 50
Am. Institute Mining. Engineers' books	11 00
Canadian Mining Institute: Dues, 10 00; Canadian Forestry Ass'n: Dues, 1 00	11 00
Canadian Mining Review: Advertising, 125.00; *Monetary Times*, 100.00	225 00
Canadian Almanac, 35.00; *Waghorn's Guide*, 2 10	37 10
Fraser's Scottish Annual, 100 00; *Can. Year Book*, 30.00	130 00
Can. Mf'g Pub. Co., 28.25; *Westminster Co*, 25.00; *Can. Magazine*, 37.50	90 75
P. Byrne: To pay entry fee on report	4 06
Sundry persons: Messenger service, 25c; Sundry newspapers: Subscriptions, 28.02	28 27

COLONIZATION AND FORESTRY.

SALARIES ($4,250,000).

Thos. Southworth	Twelve months'	salary as	Director of Colonization and Forestry	1,800 00
D. Spence	Six	do	Secretary and Intelligence Officer	750 00
M. G. Dixon	Nine	do	Clerk and Stenographer	300 00
Alex. Robertson	Twelve	do	do	900 00
R. M. Persse		do	Constable at sheds	500 00

EXPENSES ($1,713.47).

Warwick Bros & Rutter: Printing and binding, 33.30; Rolph, Smith & Co: Stamping, 2.00	35 30
Riordon Paper Mills: Paper, 30.02; L. K. Cameron: Stationery, 134.19	164 21
Colonial Typewriter Co: Repairs and supplies, 8 50; C. Gripton: Stamp and repairs, 3.25	11.75
Mrs. Hubertus: Postage stamps, 15.00; W. McMaster: Postage stamps, 180.41	195 41
Canada Legal Pub. Co: Law List, 2.00; Might Directories: Directory, 10.00	12 00
Union Directory Co: Directories	25 00
Subscriptions: *International Railway Guide*, 1.92; *Monthly Review*, 6.25; *Press Clippings* Co. 12.50; *Meehan's Monthly*, 2.00; *Timber Trades Journal*, 5.20	27 87
A. Britnell: Books, 2.70; Funk & Wagnalls: Books, 6.00	8 70
E. G. Allen: Book, .98; G. N. Morang & Co: Books, 3.00	3 98
G. N. W. Telegraph Co: Telegrams, 47.08; C. P. R. Telegraph Co: Telegrams, 33 37	80 45
Can. Express Co: Charges, 1.10; Dom. Express Co: Charges, 5.50; Bell Tel. Co: Messages, 1.80	8 40
C. W. Irwin: Express and brokerage, 2.34; Toronto Railway Co: Car Tickets, 53.00	55 34
T. Southworth: Travelling expenses, 250.00; R. M. Persse Travelling expenses, 35.50	285 50
Townsend's Livery: Cab hire, 3.50; Doane Bros. Livery: Cab hire, .75	4 25
Steinberger Hendry Co: Map of Ontario, 5.00; J. B. Smith & Sons: Boxes for papers, 10.00	15 00
Littlejohn & Vaughan: Electric, 70; J. G. Ramsey & Co: Photo supplies, 15.25	15 95
Canadian Camera Co: Camera and supplies, 21.55; T. Eaton Co: Camping utensils, 4.53	26 08
Phillips Thompson: Services at 3.00 per day, 276 00; J. Cadieux: Services at 2 per day, 314.00	590 00
W. Rolling: Services at 2.00 per day, 48.00; A. M. Smith: Stenographer, at 7.00 per week, 49 00	97 00
Penn. Forestry Association: Dues, 1.00; Mass. Forestry Association: Dues, 2.00	3 00
Am. Forestry Ass'n: Dues, 2.10; Can. Forestry Ass'n: Dues, 1.00	3 10
Sundry newspapers: Subscriptions	45 18

CIVIL GOVERNMENT.—*Continued.*

PUBLIC WORKS DEPARTMENT.

SALARIES ($24,000.00).

Hon. F. R. Latchford, Twelve months' salary as		Commissionor	$4,000 00
A. W. Campbell	do	Assistant Commissioner	2,200 00
Kivas Tully	do	Consulting Engineer and Architect	1,500 00
R. McCallum	do	Engineer	2,100 00
F. R. Heakes	do	Architect	1,800 00
Wm. Edwards	do	Secretary, Public Works	1,000 00
J. P. Edwards	do	Accountant and Law Clerk	1,300 00
R. P. Fairbairn	do	Architectural Draughtsman	1,500 00
P. E. Ryan Nine	do	Secretary to Commissioner	900 00
H. F. McNaughton Three	do	do do	250 00
M. C. O'Donell Twelve	do	Assistant Clerk and Paymaster	1,000 00
C. O'Grady	do	Clerk of Files	450 00
M. N. Jarrett	do	Clerk and Stenographer	500 00
G. Forrester	do	Messenger	600 00
Henry Smith	do	Superintendent, Colonization Roads	1,900 00
J. H. Bradshaw	do	Clerk do	900 00
M. P. Doherty	do	do do	900 00
W. A. McLean	do	do Good Roads	800 00
M. E. Mason	do	Stenographer do	400 00

EXPENSES, ($9,122.63).

Warwick Bros. & Rutter: Printing and binding, 119.53; Rolph Smith & Co: Stamping, 7.00	$126 53
George Cox: Engraving, etc., 7.25; Riordon Paper Mills: Paper, 32.56	39 81
L. K. Cameron: Paper, 58.46; stationary, 512.44; Fletcher Mfg. Co: Letter box, 2 50	573 40
Office Specialty Co: Binding cases, 10.00; Thos. Henry: blue print and tracing paper, 115.30	125 30
Rolla L. Crain Co: Binders, ledger sheets, holders, etc	41 45
Mrs. Hubertus: postage stamps,	265 00
C. Gripton: Rubber stamps and repairs	14 00
Remington Typewriter Co: Exchange on typewriter	58 00
Remington Typewriter Co: Supplies, 3.70; Can. Typewriter Co: Supplies, 3.60	7 30
R. J. Devlin: Despatch bag, 7 00; C. Tarling Co: Mounting tracings, 4.10	11 10
Might Directories: Directories, 8.50; Can. Legal Pub. Co: Law lists, 6.00	14 50
Subscriptions:—*International Ry. Guide*, 1.00; *Saturday Night*, 2 00; *Westminster*, 2.00; *Am. Architect*, 16 50; *Can. Engineer*, 1.67; *Can. Architect*, 2.00; *Can. Magazine*. 4.59; *Dom Presbyterian*, 1.50; *Events*, 2.00; *Toronto Railway Guide*, 5.00	38 26
Books:—W. Briggs, 1.50; R. Finchamp, 4.00; G. N. Morang & Co., 4.00; Vannevar & Co., 2.50; E. L. Ruddy, 5.00; W. Tyrrell & Co., 4.00	21 00
W. Tyrrell & Co: Directory, 11.00; Toronto Railway Co: Car tickets, 135.00	146 00
G. N. W. Tel. Co: Telegrams. 58.50; C.P.R. Tel. Co: Telegrams, 251.38	309 88
Bell Tel. Co: Messages, 140.45; Can. Express Co: Charges, 10.30	150 75
Dom. Express Co: Charges, 8.13; Can. Transfer Co: Cartage, 1.25	9 38
Sundry Persons: Cartage, 2.25; G. T. Railway Co: Freight charges, 45c	2 70
P. E Ryan: Cab hire, 50c; Hon. F. R Latchford: travelling expenses, 250.00	250 50
A. W. Campbell: Travelling expenses, 5.75; *re* Cyclone Dundas and Stormont, 39.10	44 85
C. H. Chase: Travelling expenses, 10 80; Jas. Patton: Travelling expenses, 31.20	42 00
T. Burton: Services as Draughtsman, Engineer's Office at 2.50 per day	836 00
H. E. Moore do *re* School of Science at 22.00 per week	1,144 00
F. B. Watson do do at 20.00 do	783 34
J. Connolly do Architect's Office at 22.00 do	1,232 00
F. J. Sullivan: Services as clerk at 2.00 per day	474 00
P. J. Dawkes: Clerk at 2.00 per day	72 00
E. J. Pentz: Services as clerk, 4.00; M. Ruickbee: Stenographer, 52.00	56 00
W. O'Grady: Messenger at 1.50 per day	30 00
James Patton: Services as Clerk of Works at 3.00 per day	48 00
Architects Supplies:—Aikenhead Hardware Co., 7.25; Jas Foster, 50c: J. B. Smith & Sons, 8.00; C. Potter, 5.00	20 75
Registrar Muskoka, Copy Deed, "Parker to Crown"	1 90
Sundry Persons: Messenger service, 11.75; Sundry Newspapers: Subscriptions, 132.00	143 75
Goods Roads Branch:—	
Warwick Bros. & Rutter: Printing and binding, 176.17; L. K. Cameron: Stationery, 70.90	247 07
Riordan Paper Mills: Paper, 250.05; Mrs. Hubertus: Postage stamps, 100.00	350 05
G. N. W. Tel. Co: Messages, 7.88; C. P. R. Tel. Co: Messages, 1.74	9 62
Can. Society Civil Engineers' Dues	8 00
Engineering News Co: Books and periodicals	35 50
Subscriptions:—*Engineering Magazine*, 3.00; *Municipal Journal and Engineer*, 3.00; *St. Bride's Press*, 9.35; *Mining Engineer*, 2 00; *Can. Architect*, 2.50; *Engineering Record*, 5.00; *Engineering News*, 5.00	29 85
A. W. Campbell: travelling expenses, 515 00; W. A. McLean, travelling expenses, 106.82	621 82
Photos of Roads:—W. J F. Read, 7.00; Edwards & Harrison, 3 00; Jarrett & Castor, 4.00; Burgess & Son, 2.50; Frank Cooper, 50c; Westlake Studio, 5.00; Jas. A. Bell, 4.00; W. A. McLean, 5.90; A. W. Pringle, 4.50	36 40
J. G. Ramsey & Co: Kodak, etc, 28.05; M. B. Twickey: Photo supplies, 75c	28 80

CIVIL GOVERNMENT.—*Continued.*

PUBLIC WORKS DEPARTMENT.—*Continued.*

EXPENSES.—*Continued.*

J. S McCallum: Photo supplies, 1.40; R. M. Pitts & Co: Photo supplies, 1.40	$ 2 80
J. H. Lemaitre: Photo supplies, 10.95; Art Metropole: Engineers supplies, 4.00	14 95
H. A. Livingston: Reporting meeting, 5.00; S. B. Lynde: Services at 2 00 per day, 36.00	41 00
M. McLean: Addressing envelopes	46 00
F. Rightmeyer: Stenographer at 2.00 per day	40 00
Eastern Good Roads Assn: 5,000 copies of report	35 00
Sundry Newspapers: Subscriptions, 48 59: extra copies, 23.51	73 10
Colonization Roads:—	
Warwick Bros. & Rutter: Printing, 3 95; L. K. Cameron, Stationery, 71.85	75 80
Mrs. Hubertus: Postage stamps, 85 00; C Gripton: Repairs to stamp, 1.50	86 50
C.P R. Telegraph Co: Telegrams, 11.37; A. W. Campbell: travelling expenses, 122.55	133 92
P. J. Dawkes: Services at 2 00 per day	74 00

TREASURY DEPARTMENT.

SALARIES ($17,250.00).

Hon. G. W. Ross	Twelve months' salary as	Premier and Treasurer	$7,000 00
W. N. Anderson	do	Assistant Treasurer	2,500 00
L. V. Percival	do	Clerk and Minister's Secretary	1,600 00
W. N. Douglas	do	Chief Clerk	1,200 00
G. W. Duncan	do	Clerk and Cashier	1,000 00
T. J. Wells	do	do	800 00
D. R. Mackenzie	do	do	750 00
N. H. Crowe	do	do	600 00
A. E. Semple	do	do and Stenographer	600 00
C. Jeffery	do	do do	500 00
A. Gayfer	do	Bank Messenger and Caretaker	700 00

EXPENSES ($3,668.08.)

Warwick Bos & Rutter: Printing and binding, 279.15; Rolph, Smith & Co: Stamping, 38.75	317 90
Rolph, Smith & C: Cheque and receipt books, 222.50; Riordon Paper Mills: Paper, 87.08	309 58
L. K. Cameron: Paper, 106.87; stationery, 431.89; Brown Bros: Stationery, 2.00	540 76
Rolla L. Crain Co: Binders, etc, 35.75; Mrs. Hubertus: Postage stamps, 650.00	685 75
Mrs. McIntyre: Postage stamps, 91 20; Cashier: Postage stamps, 58.40	149 60
W. McMaster: Postage stamps, 10.00; C. Gripton: Rubber stamps and repairs, 11.60	21 60
Can Typewriter Exchange: Inspection of typewriters	24 00
Creelman Bros: Exchange on typewriter	45 00
Might Directories: Directories, 10.00; Can Legal Pub Co: Legal chart and law list, 5.25	15 25
J. Lovell & Sons: Legal compendium, 3.00; J. Mescall: Expert calculator, 1 00	4 00
Circuit Guide Pub Co: Copies Guide, 2.00; Toronto Railway Guide: Subscription, 5 00	7 00
International Railway Guide: Subscription, 1.00; Can Bankers' Ass'n: Copies act, 80c	1 80
Books: W. Briggs, 3.00; R. Finchaw n, 4.00; J. B. Lyon, 1.00; E. G. Allen, 4.40; B. Nicholson, 15.00; Hunter, Rose & Co, 3 00; G. N. Morang & Co, 9.00; J. Lovell & Son, 3.00; W. Tyrrell & Co, 6.00; O. B. Stanton & Co, 40c	48 80
C. P. R Tel Co: Telegrams, 137.68; G. N. W. Tel Co: Telegrams, 126 66	264 34
Bell Tel Co: Messages, 16.30; C. W. Irwin: Brokerage, 55s	16 85
Can Express Co: Charges, 5.90; Dom Express Co: Charges, 90c	6 80
Toronto Railway Co: Car tickets, 88.00; Doane Bros' Livery: Cab hire, 228 00	316 00
W. J. Munshaw: Cab hire, 2.50; Alex Millard: Cab hire, 3.50	6 00
Hon. J. W. Ross: Travelling exp, 60 00; Trunk & Leather Goods Co: Despatch bag, 12 00	72 00
E. Cosgrove: Services as messenger 1901, at 5.00 per week, 30 00; at 25 00 per month, 300.00	330 00
J. Rennie: Messenger at 75c per day, 50.25; W. O'Grady: Messenger at 1.50 per day, 7.50	57 75
F. C. Bulmer: Typewriting, 5 00; M. O. Norris: Stenographer at 8 00 per week, 70.00	75 00
E. W. Wright: Clerk at 2 00 per day, 100.00; J. W. Dill: Clerk at 14.00 per week, 28.00	128 00
D. F. Tolchard: Luncheons to officials during session	13 50
Estate C. S. Wilson: Interest on cheque for dividend on stock	1 42
Sundry persons: Messenger service, 12.75; L. V. Percival: Petty office expenses, 6.30	19 05
Cashier: Petty office expenses, 72c; Sundry newspapers: Subscriptions, 189.61	190 33

PROVINCIAL AUDITOR'S OFFICE.

SALARIES ($7,725.00).

C. H. Sproule	Twelve months' salary as	Provincial Auditor	2,500 00
W. W. Wood	do	Assistant do	1,500 00
A. J. Rattray	do	Bookkeeper	1,575 00
T. P. Stewart	do	Clerk	1,300 00
G. A. Brown	do	do	850 00

CIVIL GOVERNMENT.—*Continued.*

PROVINCIAL AUDITOR'S OFFICE.—*Continued.*

EXPENSES ($1,561.03).

Warwick Bro's & Rutter: Printing and binding		$48 25
Rolla L. Crain Co: Ledger and transfer binders		39 25
Brown Bros: Blank books, 5.50 ;	L. K. Cameron: Paper, 28.43 ; stationery, 140.80	174 73
Mrs. Hubertus: Postage stamps, 40.00 ;	C. Gripton: Rubber stamp repairs, 1 00	41 00
Canadian Typewriter Exchange: Supplies, 7.13 ;	Colonial Typewriter Co: Supplies, 6.30	13 43
Bell Tel Co: Messages, 80c ;	G. N. W. Tel Co: Telegrams, 82c	1 12
Might Directories: Directory, 5 00 ;	Toronto Railway Guide: Subscription, 5.00	10 00
J. Lovell & Sons: Legal compendium, 3.00 ;	International Ry Guide: Subscription, 1.00	4 00
Toronto Railway Co. Car tickets, 5.00 ;	C. H. Sproule: Cab hire, 1.00	6 00
T. P. Stewart: Travelling expenses, 80.00 ;	G. A. Brown: Travelling expenses, 40.00	120 00
A. J. Rattray: Tra'g exp's. 30 00 ;	C. O. Brimer: Services as clerk at 14.00 per week, 728 00	758 00
W. A. Glockling: Mes'g'r 25 00 per month, 300.00 ;	H. Truax: Mes'g'r at 5.50 per wk, 16.50	316 50
T. P. Stewart: Petty office expenses, 7.50 ;	Sundry persons: Messenger service, 6.25	13 75
Sundry newspapers: Subscriptions		15 00

PROVINCIAL SECRETARY'S DEPARTMENT.

SALARIES ($16,800.00).

Hon. J. R. Stratton	Twelve months' salary as	Secretary and Registrar	$4,000 00
Geo. E. Lumsden	do	Assistant Secretary	2,500 00
J. B. McLachlan	do	Chief Clerk	1,300 00
J. D. Warde	do	Clerk	1,200 00
L. H. Irving	do	do	1,100 00
R. A. Eaton	do	Engrossing Clerk	700 00
E. A. Dent	do	Clerk and Stenographer	500 00
J. F. C Ussher	do	Deputy Registrar	1,400 00
Geo. Hobbs	do	Clerk	900 00
E. Jenkinson	do	do	850 00
H. Burrows	do	Minister's Secretary	1,200 00
E. C. Myers	do	Assistant Stenographer	550 00
F. Costello	do	Messenger and Caretaker	600 00

EXPENSES ($4,291.18).

Warwick Bro's & Rutter: Printing and binding, 339.92;	Rolph Smith & Co.: Stamping, 39.20	379 12
L. K. Cameron: Paper, 268.53 ;	Riordon Paper Mills: Paper, 13.70	182 23
L. K. Cameron: Stationery, 615.81 ;	G. J. Castle: Copy holders, 7.00	623 81
W. McMaster: Postage stamps, 300.00 ;	M. McIntyre. Postage stamps, 245.00	545 00
C. Gripton: Rubber stamps & repairs, 15.55 ;	Crelman Bros.: Typewriter sup. & rep., 1.21	16 76
Canadian Typewriter Exchange: Typewriter, 110.25 ;	Rent of typewriter 8.75	119 00
Remington Typewriter Co.: Exchange on typewriter, 170.50 ;	Rep. and supplies, 8.85	179 35
C.P.R. Tel. Co.: Telegrams, 49.41 ;	G.N.W. Tel. Co.: Telegrams, 43.78	93 19
Bell Tel. Co.: Messages, 81.25 :	Can. Express Co.: Charges, 5.10	86 35
Dom. Express Co.: Charges, 5.00 ;	G. T. Railway Co.: Freight charges, 55c	5 55
Can. Transfer Co.: Cartage, 75c ;	Toronto Railway Co.: Car tickets, 30.00	30 75
Doane Bros. Livery: Cab hire, 78 70 ;	P. Maher: Cab hire, 40.50; Alex. Millard: Cab hire, 3.50	122 70
Hon. J. R. Stratton: Trav, exp., 93.50.	Can. Legal Pub. Co.: Legal chart and law list, 7.25.	100 75
Might Directories: Directories, 10.00 ;	Bradstreet's, one-third subscription, 16.66	26 66
J. Lovell & Son: Index to statutes, 3.00 ;	W. Briggs: Book, 1.50	4 50
R Finchamp: Book, 4.00 ;	B. Nicholson: Book, 2.50	6 50
M. M. Durkin: Steno'pher at 9.00 per w'k, 474.00;	G. O'Leary, mess'gr at 5 00 per w'k, 266 00	740 00
A. Graham: Copying at 5.00 per week, 249.00 ;	R. W. Williams: Engrossing charters, 152.70	401 70
Sundry persons: Messenger service, 10.00 ;	G. E. Lumsden: Petty office expenses, 5.00	15 00
Employers' Liability: One half-premium on bond, 4.00 ;	sundry newspapers sub'tions, 143 80	147 80
Marriage Licenses :— Warwick Bro's & Rutter: Printing and binding, 54.15 ;	L. K. Cameron: Paper, 177.55	231 70
Joint Stock Co's :— Warwick Bro's & Rutter: Printing and binding, 34.58 ;	L. K. Cameron: Paper, 49.18 ; W. McMaster: Postage, 50.00	133 76

INSPECTION PUBLIC INSTITUTIONS.

SALARIES ($14,650.00).

R. Christie	Twelve months' salary as	Inspector of Asylums	2,600 00
T. F. Chamberlain	do	do Prisons and Charities	2,500 00
James Noxon	do	do do	2,400 00
James Mann	do	Chief Clerk	1,300 00
W. A. Kavanagh	do	Clerk	1,200 00
F. Williams	do	do	900 00
H. B. McBain	do	Assistant Clerk	700 00
F. M. Nicholson	do	Clerk and Stenographer	1,150 00
I. R. Aikins	do	do	1,050 00
W. Twomey	do	Stenographer	300 00
E. C. Jury	do	Messenger	550 00

CIVIL GOVERNMENT. —*Continued.*

INSPECTION PUBLIC INSTITUTIONS —*Continued.*

EXPENSES ($3,491.52).

Warwick Bro's & Rutter Ptg and binding, 489.77; Rolph Smith & Co: Stamping, 21.25	$511 02
L. K. Cameron: Paper, 52.11; stationery, 242 57; Riordon Paper mill: Paper, 60.10	354 87
G. J. Castle: Copyholder, 3.50; Mrs. Hubertus: Postage stamps, 540.00	543 50
C. Gripton: Stamps and repairs, 5 75; Can Typewriter Exchange: Typewriter, 99.00	104 75
Creelman Bros: Repairs and supplies, 2.00; G.N.W. Tel Co. Telegrams, 64.81	66 81
C.P.R. Co's Tel: Telegrams, 33 09; Bell Tel Co: Messages, 7.75	40 84
Toronto Railway Co: Car tickets	70 00
Travelling expenses: R. Christie, 142.62; James Noxon, 187.65; I. R. Aikens, 35.10	365 37
T. F. Chamberlain, 775.00; F. M. Nicholson, 38.70	813 70
Emily Cummings: Travelling expenses, inspecting institutions N. Y. State	20 54
Cab hire Doane Bros. 1.00; R. Bond, 5.50; J. McDonald, 1.00; G. W. Verrall, 1 00	8 50
Can Legal Pub Co: Legal Chart, 3.25; Bradstreet Co: One-third subscription, 16.68	19 93
Toronto Railway Guide: Subscription, 5.00; Might Directories: Directory, 5.00	10 00
Subscriptions: *Journal Mental Science*, 5.50; *Scientific American*, 3.00	8 50
Am. Journal of Insanity, 5.10; *Cordage Trade Journal* 2.03	7 13
Can. Manufacturer, 1.00; *N. Y. Charities*, 1.03	2 03
North Carolina Charities, 5.03; *Int. Ry. Guide*, 2.00	7 03
Monetary Times, 2.00; Sundry newspapers, 23.00	25 00
Sundry persons' Messenger service, 3.00; F. Williams: Petty office expenses, 5.00	8 00
A. B. Mann: Services at $2.00 per day, 448.00; M. Twomey: Stenographer, 20.00	468 00
W. Phelan: Services at $12 00 per week	36 00

AUDIT OF LICENSE AND JUSTICE ACCOUNTS.

SALARIES ($9,250.98).

Henry Totten	Twelve months' salary as	Chief Officer	2,000 00
J. K. Stewart	do	Provincial Inspector	2,000 00
J. F. Mowat	do	Clerk of Accounts	1,400 00
F. X Kormann	Five do	do	500 00
S. J. Crosby	Twelve do	Clerk and Stenographer	850 00
J. J. Walsh	Five do	do	208 00
W. Phelan	Seven do	do	394 90
R. Mahood	Five and one-half do		298 08
E. A. McLaurin	Twelve months' salary as	Clerk of Administration of Justice Accs	1,600 00

EXPENSES ($880.35).

L. K. Cameron: Stationery, 60.72: Warwick Bro's & Rutter: Printing and binding, 11.60	72 32
Mrs. Hubertus: Postage stamps, 80.00; C. Gripton: Repairing stamp, 1.75	81 75
Remington Typewriter Co: Typewriter, 114.75; C.P.R. Co's Tel. Telegrams, 4.16	118 91
G.N.W. Tel Co: Telegrams, 5.76: Bell Tel Co: Messages, 13.50	19 26
Can Express Co. Charges, 2.45; Dom Express Co, 1.00	3 45
Toronto Railway Co: Car tickets	10 00
Circuit Guide Pub Co: Copies Guide, 2.00; Can Legal Pub Co: Law Lists, 4.00	6 00
Might Directories: Directory, 5 00; J. Lovell & Son: Legal Compendium, 3.00	8 00
Can Law Journal: Subscription	5 00
Services as Clerks at $2.00 per day: C. B. Stone, 144.00; F. C. S. Wilson, 204.00	348 00
F. N. Rutherford, 132 00; G. E. Marshall, 48,00	180 00
Trunk and Leather Goods Co: Despatch bag	12 00
Sundry newspapers: Subscriptions	15 66

REGISTRAR-GENERAL'S BRANCH.

SALARIES ($8,277.64.)

P. H. Bryce, M.D	Twelve months' salary as	Deputy Registrar-General	600 00
R. B. Hamilton	do	Inspector	1,200 00
George Wheler	do	Chief Clerk	1,000 00
J. McGill Ridley	do	Clerk	900 00
J. P. Conway	do	do	950 00
C. M. Pardee	do	do	877 64
Frank Jones	do	do	800 00
C. S. Horrocks	do	do	300 00
H. J. Scobie	do	Stenographer	500 00
J. F. Dwyer	do	Messenger	400 00
Geo. Jones	Four do	do	150 00

CIVIL GOVERNMENT.—*Continued.*

REGISTRAR-GENERAL'S BRANCH.—*Continued.*

Expenses ($3,346.74.)

Warwick Bros. & Rutter: Printing and binding, 562.74 ; L. K. Cameron: Paper, 85.33	$648 07
Riordon paper mills: Paper, 105.41 ; L. K. Cameron: Stationery, 380.55	485 96
G. J. Castle: Copyholder, 3.50 ; Wm. McMaster: Postage stamps, 75.00	78 50
Bell Tel Co'y: Messages, 3.40 ; Might Directories: Directory, 5.00	8 40
Dept Public Printing: Postal guide, 40c; Hart & Riddell: Registers, 15.08	15 48
W. Briggs: Book, 68c; C. Gripton: Stamps and repairs, 5.85	6 53
Services as extra Clerks at 2.00 per day :—	
G. Blezard, 220.00 ; J. E. Rockwell, 54.00 ; J. H. Latimer, 184 00	458 00
S. Smillie, 24 00 ; H. Crossley, 104 00 ; E. H. Jolliffe, 78.00	206 00
G. B. Gordon, 156.00 ; C. Pardoe, 106.00 ; J. P. Oliver, 106.00	368 00
G. H. Gray, 54.00 ; E. Dingwall, 60.00 ; A. A. Will, 60.00	174 00
R. Biggs, 108.00 ; H. Howell, 60.00 ; O. M. Ross, 78.30	246 00
M. Smyth, 54 00 ; R. A. Ward, 78 00 ; G. E. Marshall, 48.00	180 00
F. J. Glackmeyer, 172 00 ; R. F. Choate, 36.00	208 00
W. Kirkland at 10.00 per week	70 00
Services, Registrars in Unorganized Districts :—	
J. Armstrong, 6.20 ; D. Paterson, 11.00 ; R. Cole, 5.20	22 40
C. Salt, 1.40 ; J. Gillies, 4.40 ; C. L. D. Sims, 16.60.	22 40
W. Rumsey, 9.60 ; O. La France, 5.40 ; J. J. Allan, 2.20	17 20
A. E. Annie, 4.20 ; 1. Briderback, 1.60 ; R. T. H. Pritchard, 10.60	16 40
W. L. Kemp, 2.80 ; S. A. King, 5.00 ; W. Harris, 8.60	16 40
J. W. Kinney, 7 20 ; R. E. Miller, 6 40 ; R. B. Mew, 4.00	17 60
W. L. Haight, 14.80 ; F. Deacon, 2.40 ; W. L Nichols, 13.60	30 80
M. Lawrie, 23.20 ; M. Nelan, 7.20 ; Rev. E. C. R. Pritchard, 3.60	34 00
J. A. Devenny	14 60
C. S. Horrocks: Paste, 50 : Petty office expenses, 1.50	2 00

PROVINCIAL BOARD OF HEALTH.

Salaries ($5,550.00.)

Henry E. Vaux, M.D.	Twelve months' salary as	Chairman	400 00
P. H. Bryce, M.D.	do	Secretary	2.000 00
J. A. Amyot, M.D.	do	Provincial Analyst	1,400 00
G. B. Lindsay	do	Clerk	900 00
D. W. Paton	do	do and Stenographer	550 00
George Jones	Eight do	Messenger, half time	300 00

Expenses ($2,417.69.)

Warwick Bros & Rutter: Ptg and binding, 458.60 ; Rolph Smith & Co: Stamping, 11.25.	469 85
L. K. Cameron: Paper, 31.60 ; Riordon paper mills: Paper, 201 22	232 82
L. K. Cameron: Stationery, 133 17 ; W. McMaster: Postage stamps, 122.50	255 67
C. P. R. Co's Tel: Telegrams, 76.89 ; G. N. W. Tel Co: 60.57	137 46
Bell Telephone Co' Messages	12 45
Creelman Bros: Typewriter supplies, 17.75 ; Might Directories: Directory, 5.00	22 75
International Ry Guide: Subscription, 1.00 ; Toronto Railway Guide: 5.54	6 54
Journal Medical Assn: Subscription, 5.00 ; Can Legal Pub Co: Law List, 2.00	7 00
Sanitarium, Subscription, 4.00 ; Geo. W. Morang & Co: Book, 3 00	7 00
Can Express Co: Charges, 3.25 ; Dom Express Co., 60c; Toronto Ry Co. Car tickets, 15.00.	18 85
Attendance at Board meetings :—	
Wm. Oldright, M.D., 75.00 ; E. E. Kitchen, M.D., 70.00 ; W. J. Douglas, M.D., 20.00	165 00
J. J. Cassidy, M.D., 130 00 : J. H. McCullough, M.D., 80.00	210 00
Travelling, expenses attending Board meetings :—	
J. H. McCullough, M.D., 51.60 ; E. E. Kitchen, M.D., 26.25 ; W. J. Douglas, M.D., 11.25.	89 10
H. E Vaux, M.D., 15.70 ; J. J. Cassidy, M.D., 29.60 ; Wm. Oldright, M.D., 7.95	53 25
W. Oldright, M.D., travelling expenses re Tuberculosis Congress	61 95
Services as extra Clerks at 2.00 per day	
H. Wood, 118.00 ; O. M. Ross, 30 00 ; E. H. Jolliffe, 70 00	218 00
R. Biggs, 106.00 ; G. B. Gordon, 30.00 ; G. E. Marshall, 72.00	208 00
W. Kirkland, services as Stenographer at 10.00 per week	30 00
J. E. Berkeley-Smith: Rent of laboratory	200 00
Sundry persons: Messenger service	2 00
Sundry newspapers: Subscriptions	10 00

CIVIL GOVERNMENT.—*Continued.*

DEPARTMENT OF AGRICULTURE.

SALARIES, ($18,100.00).

Hon. John Dryden	Twelve months' salary as	Minister of Agriculture	$4,000 00
C. C. James	do	Deputy Minister	2,500 00
W. F. McMaster	do	Assistant Secretary	1,700 00
W. B. Varley	do	Clerk and Minister's Secretary	1,200 00
Thos. McGillicudy	do	Clerk and Stenographer	1,100 00
W. O. Galloway	do	Chief Clerk	1,450 00
N. J. Clark	do	Clerk, Municipal Statistics	1,000 00
John Darrach	do	do	1,000 00
W. J Gray	do	do	1,000 00
M. Wilson	do	do	1,000 00
A. G. Henderson	do	do	1,000 00
B. Thompson	do	do and Stenographer	550 00
Thos. Lynch.	Four do	Messenger and Caretaker	200 00
M. J. O'Discoll	Eight do	do	400 00

(EXPENSES, ($1,224.34).

Warwick Bros. & Rutter: Printing and binding, 36 80; Rolph Smith & Co: Stamping, 23.75	60 55
L. K. Cameron: Paper, 71.87; stationery, 237.09; G. J. Castle: Copy holders, 7.00	315 96
Office Specialty Mfg Co: Cards, 7.50; W. McMaster: Postage stamps, 130.00	137 50
Creelman Bros. Typewriter Co: Supplies, etc, 17.25; Neostyle, 20.00	37 25
C Gripton: Rubber stamps and repairs, 5.25; C.P.R. Telegraph Co: Telegrams, 20.92	26 17
G.N.W. Tel Co: Telegrams. 35.61; Bell Tel Co: Messages, 4.40	40 01
G. T. Railway Co: Freight charges, .60; C. W. Irwin: Brokerage charges, .25	85
Can. Express Co: Charges, 33.40; Dom. Express Co: Charges, 4.35	37 75
Can. Transfer Co: Carting mail to Post Office, 70.75; Toronto Railway Co: Car tickets. 15.00	85 75
Doane Bros. Livery: Cab hire, 50.00; R. Bond: Cab hire, 1.50	51 50
J. J. O'Leary: Cab hire, 3.00; Hon. Jno. Dryden: Travelling expenses, 37.50	40 50
C. C. James: Travelling expenses, 75.00; W. B. Varley: Travelling expenses, 17.10	92 10
Toronto Railway Guide: Subscription, 10.00; Can. Legal Pub. Co: Law list, 4.00	14 00
Might Directories: Directory, 5.00; Circuit Guide Pub Co: Copies guide, 2.00	7 00
P. S. King & Sons: Reports, 5.39; J. J. Harpell: 20 copies Queens Quarterly, 3.00	8 39
L. J. Thomas: Stereoscopic views	3 70
Books: A. Britnell, 4.00; W. Briggs, 7 30; Lt.-Col. H. M. Pellatt, 5.00; R. Finchcamp, 4.00; Virtue & Co., 5.00; B. Nicholson, 4.00; G. N. Morang & Co., 3.00; Orange Judd Co., 6 51; Vannevar & Co., 1.00; L. W. Gill, 1.20; Mark Lane Express, .30; W. H. Lowdermilk & Co., 2.00; Dept. Pub. Printing, 1.20; Pastoralists Review, 4.97	49 48
J. P. McMillan: Volunteer emblem, 1.00; Am. Assn. Advancement of Science: Assm't, 3.00	4 00
T. McGillicudy: Petty office expenses, 25; sundry persons: messenger service, 8.00	8 25
Farming World, 50 copies autumn number	3 25
Gazette Printing Co: 45 copies Trade Export Port Montreal	6 75
Sundry newspapers: Subscriptions	193 63

INSURANCE BRANCH.

SALARIES, ($5,550.00).

J. Howard Hunter	Twelve months' salary as	Inspector of Insurance and Registrar of Friendly Societies	3,000 00
W. J. Vale.	do	Assistant do	1,200 00
K. A. Chisholm	do	Clerk	900 00
Alice C. Lynch	do	Stenographer	450 00

EXPENSES ($2,837.73).

Warwick Bros.& Rutter: Printing and binding, 1,037.64; Riordon Paper Mills: Paper, 316.19	1,353 83
L. K. Cameron: Paper, 27.29; stationery, 83 00; Mrs. Hubertus. Postage stamps, 50.00	160 29
C. P. R. Tel. Co: Telegrams, .58; G.N.W. Tel Co: Telegrams, 2.55	3 13
C. Gripton: Stamps and rep'rs, 9.50; Can. Legal Pub. Co: Legal chart and law list, 3.25	12 75
Bradstreet: One third subscription, 16 66; Might Directories: Directory, 5 00.	21 66
ubscriptions.— International Railway Guide, 1.00; Journal Commerce, 2 00; Money and Risks, 2.00; Insurance Monitor, 3.00; Curcuit Guide, 2.00; Can. Law Journal, 5.00; Insurance Chronicle, 2.00; Insurance Year Book, 8.00	25 00
Carswell Co: Law books and reports, 63.25; Can Law Book Co: Law books, 86.70	149 95
A. Britnell: Books, 5 00; Geo. Kelly: Book, 2.25; G. N. Morang & Co: Book, 3 00	10 25
Fraternal Monitor, 5.50; Can Express Co: Charges, .77	6 27
Dom Express Co: Charges, .40; J. H Hunter: Travelling expenses, 73.30	73 70
W. J. Vale: Travelling expenses, 189.12; K. A. Chisholm. Travelling expenses, 34.80	223 92
H. P. Royal: Clerk, @ 2 50 per day, 780.00; W. J. Vale: Petty office expenses. 4.23	784 23
Sundry persons: Messenger service, 3 75; Sundry newspapers: Subscriptions, 9.00	12 75

CIVIL GOVERNMENT.—*Concluded.* LEGISLATION.

NEGLECTED CHILDREN'S BRANCH.

SALARIES ($3,500 00)

J. J. Kelso	Twelve months' salary as	Superintendent and Inspector	$1,500 00
Wm. O'Connor	do	Additional Inspector	900 00
Mrs. L. J. Harvie	do	Children's Visitor	650 00
L. McMahon	do	Clerk and Stenographer	450 00

EXPENSES ($2,058.86.)

Warwick Bros. & Rutter: Printing and binding, 210.05; Rolph Smith & Co: Stamping, 9.00. 219 05
Riordon Paper Mills: Paper, 105.14; Mrs. Hubertus: Postage stamps, 142.00 247 14
L. K. Cameron: Paper, 25.94; stationery, 131.96 157 90
Toronto R'y Guide: Subscription, 5.00; Might Directories: Directory, 5 00 10 00
Great Thoughts: Subscription, 2.21; P. F. Cronin: 32 copies Canadian Almanac, 8.00 10 21
W. Sutherland: Books, 2 00; W Briggs: Cards and Booklets, 18.85 20 85
Office Specialty Co: Card index, 1.50; W O'Connor: Cards for children, 5.40 6 90
C.P.R. Tel Co: Telegrams 2.89; G. N. W. Tel Co: Telegrams, 8.40 11 29
Trunk and Leather Goods Co Travelling bag, 7 50; Toronto R'y Co: Car tickets, 18.00 25 50
Can Express Co: Charges, 3.60; Dom Express Co: Charges, .85 4 45
J. J. Kelso: Travelling expenses, 133 83; L. J. Harvie: Travelling expenses, 591.62 725 45
W. O'Connor: do 394.44; B. Dewar: Stenographer, 165.00 559 44
H. Maughan: Photo supplies, 16.50; J. G. Ramsey & Co: Photo supplies, 15.77 32 27
Rev. H. C. Dixon: Photo supplies, 1.80; Globe Ptg Co: Cuts of children, 1 41 3 21
Grip Ptg & Pub Co: Cuts of children, 2 10; Thompson Eng Co: Cuts of children, 1.25 3 35
Littlejohn & Vaughan: Cuts of children, 1.50; J. S. Coleman: Photos of children, 3.20 4 70
N Conference of Charities: Fees, 5.00; J. J. Kelso: To pay express, telegrams, etc, 6.15 11 15
Sundry Newspapers: Subscriptions 6 00

OFFICIAL GAZETTE.

Warwick Bros and Rutter: Printing and binding 3,544 69

KING'S PRINTER'S OFFICE.

SALARIES ($3,520.05.)

L. K. Cameron	Twelve months' salary as	King's Printer	1,400 00
S. P. Grant	do	Assistant King's Printer	950 00
W. H. Clarke	do	Chief Clerk	1,000 00

Warwick Bros & Rutter: Printing and binding, 6.25; Rolph Smith & Co: Stamping, 7.25. 13 50
L. K. Cameron: Paper, 4.45; C. Gripton: Rubber stamps, 4.50 8 95
Can Legal Pub Co: Chart and law list, 3.25; Might Directories: Directory, 5.00 8 25
International Ry Guide: Subscription, 5.00; In and Printer: Subscription, 2.50 7 50
J. Lovell & Son: Legal compendium, 2.00; Bell Tel Co: Messages, 2.40 4 40
Rapid Delivery Co: Cartage, 10; Can Transfer Co: Cartage, 1.50 1 60
Toronto Ry Co. Car tickets, 20 00; L. K. Cameron: Travelling expenses to Ottawa, 25.00 55 00
Art Metropole: Magnifying glass, 1.10; W. A. Murray & Co: Bag, 3.75 4 85
Trunk & Leather Goods Co: Bag, 9.00; Sundry Newspapers: Subscription, 7.00 16 00
Donald Bain: Taking inventory of stock 50 00

INSPECTION REGISTRY OFFICES ($2,250.00.)

D. Guthrie	Twelve months' salary as	Inspector	1,750 00
do	Allowance for travelling expenses		489 45

L. K. Cameron: Staty, 5.75; Warwick Bros. & Rutter: Embossing, 4.25; Can Exp Co: .55. 10 55

Total Civil Government 285,203 42

LEGISLATION.

SALARIES ($15,950.00.)

Hon. F. E. A. Evanturel	Services as	Speaker	2,000 00
Chas. Clarke	Twelve months' salary as	Clerk of the House	2,000 00
A. H. Sydere	do	Assistant Clerk and Clerk of Routine	1,500 00
J. M. Delamere	do	Clerk and Postmaster	1,100 00
L. K. Cameron	do	Accountant (also King's Printer)	400 00
Avern Pardoe	do	Librarian	1,800 00
E. J. O'Neill	do	Assistant Librarian	500 00
A. M. Dymond	do	Law Clerk	1,200 00
F. J. Glackmeyer	do	Sergeant-at-Arms	1,000 00

LEGISLATION.—*Continued.*

SALARIES.—*Continued.*

P. O'Brien	Twelve months' salary as	Housekeeper and Chief Messenger	$900 00
M. Bailey	do	Messenger	650 00
V. P. Fayle	do	do	600 00
Jas Roberton	do	do	600 00
D. B. Wylie	do	do	500 00
D. F. Tolchard	do	do	450 00
D. Keenan	do	do	500 00
C. S. Berthon	do	Stenographer	250 00

CLERKS OF COMMITTEES, ETC. ($3,674.40).

R. A. Kent	Services as Clerk to Committee on Standing Orders, Railways and Legal Committee.		500 00
W. E. Raney	Services as Clerk to Private Bills Committee		400 00
W. McArthur	do	Public Accounts Committee	400 00
D. R McLean	do	Municipal Committee	300 00
E. H. Thomson	do	Secretary to Leader of Opposition	750 00
G. Evanturel	do	Mr. Speaker, at 4 00 per day	280 00
M. O. Hammond	do	Reporter, Public Accounts Committee	131 40
M. O. Hammond	do	Financial Statement	40 00
J. W. Dill	do	Assisting Clerks of Committees, at 3.00 per day	207 00
M. E. Conway	do	do do do	249 00
P H. McEwen	do	do do do	177 00
R. Clarke	do	do do at 2.00 per day	150 00
J. Waddell	do	Preparing Reports for Legislature, at 2.00 per day	90 00

SESSIONAL CLERKS, WRITERS, MESSENGERS AND PAGES. ($7,961.50).

Stenographers at $2 00 per day :—	
R. Duggan, 118.00 ; Jessica Grant, 120 00 ; B. Moore, 118.00 ; M. St Charles, 194 00 ; Gretta Brown, 118.00 ; M. Norris, 128 00 : D. Jones, 118.00 ; M. Behan, 118.00 ; M. Diggins, 118.00 ; L. Conlin, 118.00 : E. E. Augustine, 118.00	1,386 00
Writer at $3 00 per day :—	
Phillips Thompson	207 00
Writers at $2.00 per day :—	
F. J G ackmeyer, 118.00; Jos. Doyle, 118.00; F. J. Sullivan, 118 00 ; F. Wells, 118.00 ; E. De Haitre, 118.00 ; R. H. Hodgson, 122 00 ; Jos. Gurofsky, 139.00 ; F. Barrett, 118.00 ; J. B. Hardy, 118.00 ; D. Loughrin, 96.00 ; S. Smillie, 76.00 ; Jno. Wynn, 138.00 ; L. E. Evanturel, 138 00 ; A. Pearson, 148.00 ; J. J. Bell, 138.00 ; F. R. Yokome, 148.00 ; J. Daley, 138.00 ; Geo. Scott, 138.00 ; Arch Currie, 138.00 ; P. W. O'Brien, 148 00 ; J. C. McKay, 146.00	2,677 00
Stenographers' and Writers' travelling expenses :—	
F. Wells, 10.60 ; R. H. Hodgson, 1.30 ; B. Moore, 13.90 ; M. St. Charles, 7.50 ; Gretta Brown, 15.40 ; D. Jones, 5.20 ; M. Behan, 16 30 ; M. Diggins, 8 00 : L Conlin, 2 30 ; E. E. Augustine, 8.00 ; F. Barrett, 7.80 ; J. B. Hardy, 1.30 ; D. Loughrin, 16 50 ; S. Smillie, 7.30	121 40
Messengers at $2 00 per day :—	
F. Howard, 141.00 ; G. Blezard, 141.00 ; E. A. Bishop, 240.00 ; P. O'Keefe, 164.00	686 00
Messengers at $1.50 per day :—	
M. Halley, 120.00 ; M. J. Doran, 120 00 ; D. Miller, 103.50 ; O. Mooney, 91.50 ; E. B. Bosselly, 118.50 ; S. Ross, 126.00 ; J. W. McGaffin, 106.50 ; C. McConkey, 127.50 ; L. P. Villeneuve, 105.00 ; J. Tolchard, 111 00 ; M. Bailey, 103.50 ; A. Smart, 103.50 ; W. McFarlane, 117.00 ; T. Donovan, 103.50 ; G. Imprey, 78.00	1,635 00
Messengers' travelling expenses :—	
M. J. Doran, 3.00 ; D. Miller, 6.10 ; O. Mooney, 6 80 ; E. B. Bosselly, 5.30 ; C. McConkey, 10.20 ; L. P. Villeneuve, 18.20 ; A. Smart, 3.80 ; T. Donovan, 15.70	69 10
Pages at $1.00 per day :—	
W. O'Grady, 76 00 ; W. Furby, 69 00 ; R. C. Sinclair, 69.00 ; R. C Orchard, 69.00 ; C. R Lindner, 69 00 ; H A Truax, 69.00 ; C. Kennedy. 69.00 ; D. Lynde, 69 00 ; H. Murphy, 69.00 ; C. Hodgins, 69.00 ; H. Ferry, 69 00 ; W. Mairland, 69.00 ; C. Quinn, 69.00 ; A. Enright, 69.00 ; W. Brophy, 69.00 ; E. B. Balfour, 69 00 ; W. Cameron, 69.00	1,180 00

POSTAGE AND COST OF HOUSE POST OFFICE ($2,434.45).

Mrs. Hubertus: Postage stamps, 1,950.00 ; Postmaster: Unpaid postage, 4.90	1,954 90
Can. Mailing Agency: Stamping wrappers. 90.80 ; C. Tarling & Co Mounting map, 1.50	92 30
Pritchard-Andrews Co: Dating stamp, 17.50 ; C. Gripton Rubber stamps, 4.75	22 25
Jos. Power: Carriage of mail	365 00

LEGISLATION.—*Continued.*

STATIONERY, PRINTING AND BINDING ($41,319.78).

Warwick Bros & Rutter: Printing and binding, 31,509.38 ; Kilgour Bros: Paper, 317.00..	$31,826 38
Buntin, Reid & Co: Paper, 1,777.56 ; Riordon Paper Mills: Paper, 10,634.39.....	12,411 95
L. K. Cameron: Stationery, 1,971.71 ; Brown Bros: Stationery, 10.00.....	1,981 71
W. McMaster: Postage stamps, 300 00 ; Rolph, Smith & Co: Stamping, 17.00	317 00
Municipal World. Binding Revised Statutes damaged by fire, Court House, St. Thomas....	18 00
Engravings, Cuts, etc. :—	
Grip Ptg & Pub. Co: Archæological report, 73 75 ; Experimental Fruit Stations, 27.35..	101 10
Agriculture College, 42.10 ; Children's Branch, 20.94 : Fumigation, 9.70.....	72 74
Bureau of Mines, 48.80 ; Board of Health, 19.88 ; Half-tones, 21.79.....	90 47
Thomson Engraving Co, 126.64 ; Children's Branch, 12.50 ; Fruit Growers', 4.80....	143 94
Bureau of Mines, 119.95 ; Farmers' Institutes, 13 94.....	143 89
Alexander & Cable: Public Works Dept: 72.05 ; Littlejohn & Vaughan: Entomological, 1 50	73 55
Southern Printers' Supply Co: Forestry, 3.30; Toronto Lithographing Co: Education, 547.00	550 30
Toronto Lithographing Co: Geological maps, Bureau Mines, 950.00 ; C. Tarling & Co : Mounting maps, 1.50	951 50
Toronto Railway Co: Car tickets, 10.00 ; Can. Transfer Co: Cartage, 11.05.....	21 05
Can. Express Co: Charges, 140.85 ; Dom. Express Co, 74.54.....	215 39
	$48,908 97
Less paper transferred to Departments.....	7,589 19
	$41,319 78

LIBRARY ($3,283.44).

Books :—	
J. M. Oxley, 20.00 ; R. Finchamp, 4.00 : D. Appleton & Co, 19.50 ; S. Austen, 16.75	60 25
Jas. Bain, 14.00 ; Banks & Co, 3.50 ; Boston Book Co, 25.47 ; Wm. Briggs, 19.45	62 42
A. Britnell, 19.60 ; J. Britnell, 26.40 ; J. W. Bailey, 1 00 ; Burrows Bros' Co, 17.88	64 88
Carswell Co, 274 85 ; Robt. Clarke Co, 10.00 ; W. B. Clarke Co, 2.67 ; J.W. Cadby, 28.25	310 77
Can Law Book Co, 195.40 ; F W.Coburn, 5,50 ; A.S.Clark, 10.19 ; Congdon & Britnell,56 50	267 59
Can Ry News Co, 4.00 ; Crosscup & Sterling, 2.00 ; Chandler & Massey, 6 50 ; Century Co, 1.26	13 76
Copp, Clark Co, 126.67 ; E.R.Dumont, 63.00 ; F.A.Davis & Co, 2.00 ; J.G.Foster & Co, 5.00	196 67
L. A. Edwards, 75c ; Granger Freres, 35.94 ; Harper & Bros, 12.60 ; F. P. Harper, 9.50	58 79
M. Hicks & Co, 2.26 ; T. Henry, 6.25 ; Hist'l Pub Co, 18.00; Houghton, Mifflin & Co, 1.44	27 95
G.P.Humphrey, 8.03 ; Kimball Bros. 6.71 ; Longmans, Green & Co. 9.42; C. E. Lauriat & Co, 4.34	28 50
Little, Brown & Co, 13 86; J. Lovell & Son, 8.00; J. H. Lamb & Co, 28.00; G. N. Morang & Co, 13 68	63 54
F.M.Morris, 5.29 ; J.D.Morris & Co, 28.50 ; W.F.Morrison, 35.84 ; McMillan & Co, 88.24	157 87
A. McMurchy, 1.00 ; R. McLeod, 1.00 ; A. McKim & Co. 2 00 ; J. McDonough, 75.05	79 05
L.C.Page & Co, 1.43 ; G.P.Putnam's Sons, 20.67 ; F.H Revell & Co, 5.80 ; E.L.Ruddy, 5.00	32 90
G.P.Rowell & Co, 5 00 ; J. Skinner, 12.17 ; J. E. Scopes, 15.17 ; Snow Law Pub Co, 3.00	35 34
E. Thompson Co, 30.00 ; Wm.Tyrrell & Co, 84 83 ; Virtue & Co, 4.00 ; VanNostrand Co, 89c	119 72
E. A.Werner, 16.74 ; Harold A.Wilson Co, 2 50 ; A. Walsh, 5.20 ; J. Wiley & Sons, 13.53	37 97
W.H.Smith & Sons, 20 92 ; W.George's Sons, 12.48 ; C. King, 3.20 ; E.G.Allen, 272.53	319 13
Mudies'Select Lib'y, 140.46 ; P.S.King & Son, 52.22 ; K.J.Trubner, 2.98 ; J.Maissonneuve, 4.27	199 93
Librarie Ch. Chadenat, 4.95 ; A. G. Loughty, 33.34 , Adair Book Store, 20.40	53 69
Burnham Book Store, 8.03 ; Cumulative Index Co, 5.00	13 03
J. H. W. Cadby, 10.00 ; Dodd, Mead & Co, 3.20 ; Goodspeed's Book Shop, 2.00	15 20
Jno. Hopkins Press, 3.00 ; Abbè L. Lindsay, 1.00 ; G. E. Littlefield, 9.00 ; B.Nicholson, 4.00	17 00
P. O'Brien, 5.00 ; Old South Work, 1.25 ; Publishers' Weekly, 15 65 ; J. S. Rowland, 5.00	26 90
C.Scribners' Sons, 33 01 ; Rev.W.H.Smith, 1.50 ; Sound Currency Com, 2 27; C. Theoret 5 50	42 28
University Toronto, 1.50 ; T.E Champion, 6.00 ; A.M.Abbott, 2.00 ; Current Hist'y Co, 1.50	11 00
Gammel Book Co, 2.00; Manitoba Law Soc'y, 7.50; R. Renault, 4.06; LeonardScottPubCo, 6.15	19 71
Tribune Ass'n, 2 00 ; M. Wilson, 15c ; National Conference of Charities, 1.25	3 40
E. J Rowley: Portfolio of portraits of Governors, Lieut-Governors, etc, of province	25 00
Periodicals, magazines, etc :—	
A. T. Chapman, 1.00 ; Wm. Tyrrell & Co, 285.50.....	286 50
J. K. Williams: Copies Xmas *Globe*.....	1 00
Legal Pub Co: Legal chart and law list, 5.25 ; Circuit Guide Pub'g Co: Copies Guide, 1.00	6 25
Am. Library Ass'n: Subscription, 2.00 ; Am. Economic Ass'n, 4.00	6 00
Can Law Review, 5.00 ; Michigan Pol Science Association, 2.00.....	7 00
Might Directories: Directories, 8.50 ; Union Pub Co: Directory, 4.00.....	12 50
Warwick Bro's & Rutter: Binding.....	523 00
Can Express Co: Charges, 26.50 ; Dom Express Co, 15.90.....	42 40
C. W. Irwin: Brokerage, etc, 20.85 ; Vokes Hardware Co: Glue for rep'g binding, 3.96	24 81
E. G. Allen: Freight and insurance on books	4 24

INDEMNITY TO MEMBERS.

L. K. Cameron: To pay indemnity and mileage to Members.....	58,950 00

LEGISLATION.—*Concluded.* ADMINISTRATION OF JUSTICE.

EXPENSES ($7,198.03).

G.N.W. Tel Co: Telegrams, 55.74 ; C P.R. Tel Co: Telegrams, 37 22	$ 92 96
Bell Tel Co'y: Messages, 20.75 ; Can Express Co: Charges, 172.44	193 19
Dom Express Co: Charges, 84.03 ; Can Transfer Co: Cartage, 148.90	232 93
Rowlinson's Express: Cartage, 1.20 ; Dalby Express Co: Cartage, 20c	1 40
Duggan's Express: Cartage, 25c ; D. W. Wright: Cartage, 1.50	1 75
G.T. R'y Co: Freight charges, 70c ; Toronto R'y Co: Car tickets, 79.00	79 70
Doane Bro's: Cab hire, 92 25 ; Cab hire, Members to Central Prison, 56.00 ; Cab hire *re* funeral, 104 00	252 25
G. W. Verral: Cab hire, 2.50 ; C. Gripton: Rubber stamps and repairs, 33.75	36 25
Creelman Bro's: Rent of typewriters, 133.73 ; Remington Typewriter Co: Copy holder, 2.50	136 23
Linotype Co: Exchange on typewriter, 35.00 ; J. W. Grumiaux: *Digest*, 5.00	40 00
Might Directories: City directories, 20.00 ; International R'y Guide Subscription, 3.00	23 00
Can Legal Pub Co: Law list, 2.00 ; J. Lovell & Son: Legal compendium, 3.00	5 00
T. E. Champion: Books, 2.00 ; W. Briggs: Books, 3.00	5 00
R. Finchamp: 5 setts Begg's History North West	20 00
L. G. Desjardine: 100 copies Speaker's Decisions House of Commons	125 00
W. Briggs: 100 copies Great Lakes to Wide West	150 00
do 12 copies Canadian Battlefields	18 00
Stovel & O'Brien: Repairing official robes	6 00
Sundry supplies for Speaker :— W. A. Murray & Co, 58.63 ; Royal Shoe Store, 3.50 ; S. Tidy & Son, 7.00 ; Heintzman & Co: Tuning piano, 5.00 ; Dorien Plating Co: Crown for mace, 33.00 ; gold plating mace, 25.00 ; repairs to staff, 10 00	142 13
W. H. Sutherland: Services Accountant's office at 2.00 day	720 00
J. W. Dill: Library, at 2.00 day, 572 00 ; G. F. N. Atkison: Library, at 2.00 day, 60.00	632 00
A. Currie. do 606 00 ; F. L. Beer: do 234.00	840 00
D. P. Garrow: do 50 00 ; J. Brayley: do 48.00	98 00
Warwick Bro's & Rutter: Printing and Binding, 4.80 ; scrap books, 61.50	66 30
L. K. Cameron: Paper, 11.48 ; stationery, 683.23 ; stationery Board of Trade conven'n, 23.20	717 91
C. Hodgins: Messenger, Board of Trade convention	3 00
W. Brophy: do do	3 00
Rolph, Smith & Co: Stamping and engraving, 8 10 ; Davis&Henderson: Voucher cases, 25.00	33 10
Rolla L. Crain Co: Binders for Library, 75 50 ; J. P. McKenna: Almanacs, 70c	76 20
T. W. Clarke: Writing cards for Members desks	2 00
W. H. Clarke: Engrossing cards for Members desks	4 00
D. F. Tolchard: Meals for officials during session	65 15
do do telegraph operators during session	25 55
do Extra meals	65 00
do Paste	10 00
P. O'Brien: Refreshments for guard, opening and closing house	15 00
R. A. Eaton: Illuminating address to His Royal Highness Prince Henry of Prussia	30 00
J. H. Dunlop: Flowers *re* funeral	35 00
T. Kelvington: do	10 00
Grove & Co: Repairing tire, messenger's wheel	75
Dunlop Tire Co: Pair of tires, do	9 00
P. O'Brien: To pay sundries, 10.69 ; Sundry persons: Messenger service, 9.00	19 69
Sundry newspapers: Subscriptions, 670.94 ; Sundry newspapers: ad'v'g private bills, 271.40	942 34
Services and expenses as witnesses Public Accounts Committee :— J. C. Shook, 16.00 ; W. Davidson, 10.00 ; R Hall, 32.00 ; C. Dickson, 10.00 ; J. Eakin, 46.00 ; J. Dingman, 20.00 ; F. A. Walden, 33.00 ; G. Linton, 46.00	213 00
Services and expenses Agricultural and Colonization Commission :— J. Goodfellow, 8.00 ; W. Lochhead, 4.00 ; W. Farris, 7.00 ; J. Sissons, 8.00 ; J. L. Warnica, 7.00 ; R. M. Watson, 8.00 ; Hon. C. Drury, 8.25 ; Jos. Todd, 7.00 ; W. Banks, Jr: Reporting sessions, 23.00 ;	
J. A. Hall, sheriff: Expenses procuring witnesses from Dickson's lumber camps, 15.00	95 25
Barwick, Aylesworth & Franks: Legal services *re* appeals Toronto Railway assessment	250 00
do do Manitoba and N Shore Ry Co	100 00
H. L. Drayton: Legal services *re* railway bills	500 00
Z. A. Lash: Legal services *re* proposed disallowance of act licensing extra prov'l corporations	20 00
W. A. Charlton: Travelling expenses *re* transportation of Members	36 00
Total Legislation	140,771 60

ADMINISTRATION OF JUSTICE.

SUPREME COURT OF JUDICATURE ($35,208.61).

Hon. J. D. Armour	Chief Justice of Ontario,	Allowance		$891 30
Hon. Charles Moss	do	do		108 70
Hon. F. Osler	Justice of Appeal	do		1,000 00
Hon. James Maclennan	do	do		1,000 00
Hon. Charles Moss	do	do		891 30
Estate late Hon. James F. Lister	do	do		166 66
Hon. J. T. Garrow	do	do		782 87

ADMINISTRATION OF JUSTICE.—*Continued.*

SUPREME COURT OF JUDICATURE.—*Continued.*

Hon. Sir J. A. Boyd	Chancellor of Ontario,	Allowance	$1,000 00
Hon. Thos. Ferguson	Justice, Chancery	do	1,000 00
Hon. T. Robertson	do	do	1,000 00
Hon. R. [illegible] Meredith	do	do	1,000 00
Hon. W. G. Falconbridge	Chief Justice, King's Bench	do	1,000 00
Hon. W. P. R. Street	Justice	do do	1,000 00
Hon. W. Lount		do do	1,000 00
Hon. Sir W. R. Meredith	Chief Justice, Common Pleas	do	1,000 00
Hon. Hugh MacMahon	Justice	do do	1,000 00
Hon. B. M. Britton		do do	1,000.00; arrears, 269.18 1,269 18
James S. Cartwright	Twelve months' salary as Registrar Sup Court and Court of Appeal		2,000 00
John Winchester	do	Master in Chambers	3,400 00
Fulford Arnoldi	do	Clerk do	1,600 00
Alex. MacGregor	Ten do	Assistant Clerk in Chambers	630 10
A. B. G. Cull	Twelve do	Entering Clerk do	600 00
C. Bell	Two do	Assistant Clerk do	212 37
Rolph Smith & Co.: Stamping, 2.50;		L. K. Cameron: Stationery, 74.63	77 13
Mrs. Hubertus: Postage stamps, 32 00;		C. Gripton: Stamps and repairs, 8.25	40 25
Can. Legal Pub. Co.: Legal chart and law list, 3.25;		*Can Law Times*: Subscription, 5.00	8 25
Might Directories: City directory, 5.00;		*Circuit Guide*: Copies, 4.00	9 00
Dom. Pub. Co.: Map, 98c;		Can. Transfer Co.: Cartage, 1.75	2 73
Planet Bicycle Co.: Part exchange on bicycle for messenger			10 00
Thomas Hodgins, Twelve months' salary as Master in Ordinary			4,000 00
Neil McLean	do	Chief Clerk and Accountant	2,000 00
A. E. Bastedo	do	Clerk and Stenographer	1,050 00
L. K. Cameron: Stationery, 117.29;		Warwick Bro's & Rutter: Printing and binding, 1.53	118 82
Circuit Guide: Copies, 1.00;		Can. Legal Pub Co.: Chart and law list, 3.25	4 25
Might Directories: City directory, 5.00;		*Can Law Journal*: Subscription, 5.00	10 00
Mrs. Hubertus: Postage stamps, 17.50;		Carswell Co.: Law reports, 23.50	41 00
Can. Law Book Co.: Digest, 3 50;		Thos. Hodgins: Life insurance contracts, 3.50	7 00
Can. Transfer Co.: Cartage, stationery, 50c;		L. K. Cameron: Paper, 79c	1 29
J. H. Thom,	Twelve months' salary as Senior Taxing Officer		2,050 00
Geo. M. Lee	Ten do	Junior do	1,338 95
M. J. Macnamara,	Two do	do do	361 01
L. K. Cameron: Stationery, 10.95;		Can. Legal Pub. Co.: Chart and law lists, 4.50	15 45
Might Directories: City directory, 5.00;		Mrs. Hubertus: Postage stamps, 4.00	9 00
C. Gripton: Rubber stamp, 1.50;		Can. Transfer Co.: Cartage, 50c	2 00
Mr. Justice Osler: Grant to Judges' Library			200 00
J. S. Holmested:	do do		200 00

COURT OF APPEAL ($3,708.74).

C. S. Grant	Twelve months' salary as Clerk		1,200 00
W. M. Winterberry	do	Secretary to Judges	800 00
do	do	do arrears 1901	334 00
Eli Oliver	do	Usher and Messenger	750 00
Warwick Bro's & Rutter: Printing and binding, 51.56;		Rolph Smith & Co.: Stamping, 4.13	55 69
L. K. Cameron: Stationery, 133.89;		paper, 15.66	149 55
Mrs. Hubertus: Postage stamps, 40.00;		Might Directories: City directory, 5 00	45 00
Can. Legal Pub. Co.: Legal chart and law list, 4.50:		C. Gripton: Rubber stamp, 4.00	8 50
Toronto Ry. Co.: Car tickets, 3 00;		Can. Transfer Co.: Cartage, 75c	3 75
Planet Bicycle Co.: Part exchange on bicycle for messenger			10 00
G. L. Wynn: Copies of judgments			2 25
Hon. Chief Justice Moss: Allowance for petty expense fund			350 00

HIGH COURT ($2,752.68).

G. B. Nicol	Twelve months' salary as Clerk of Assize		1,200 00
do	Allowance for petty office expenses		25 00
A. E. Trow	Twelve months' salary as Clerk of Process		1,400 00
Warwick Bro's & Rutter: Printing and binding, 60.43;		Mrs. Hubertus: Post. stamps, 17 50	77 93
L. K. Cameron: Paper, 4.29;		stationery, 34.11	38 40
Might's Directories: City directory, 5 00;		Can. Legal Pub. Co: Chart and law lists, 5.25	10 20
Dom. Express Co.: Charges, 60c;		Can. Transfer Co.: Cartage, 50c	1 15

CENTRAL OFFICE—HIGH COURT ($14,791.51).

M. B. Jackson	Twelve months' salary as Clerk of the Crown				2,500 00
M. J. Macnamara	Ten	do	do	Clerk of Records and Writs	1,181 45
E. Harley	Two	do	do	do	259 47
do	Ten	do	do	Senior Clerk	1,083 00
do				do arrears (1899)	54 00
Alex. McGregor	Two	do	do	Judgment Clerk	212 37

ADMINISTRATION OF JUSTICE.—*Continued.*

CENTRAL OFFICE.—*Continued.*

A. McDonell	Twelve months'	salary as	Clerk	$1,400 00
A. J. Elliot	do	do	do	1,000 00
C. A. Steward	do	do	do	1,000 00
Clarence Bell	Ten do	do	do	748 25
F. W. Scott	Twelve do	do	do	721 22
R. F. Killaly	do	do	do	750 00
M. B. Black	do	do	do	750 00
George Hilliar	do	do	Housekeeper and Messenger	650 00
Jas. Gorrie	do	do	Messenger	575 00
G. Crawford	do	do	do	275 00
C. Sutherland	do	do	Housekeeper	350 00
G. Smith	do	do	Assistant Housekeeper	400 00
Warwick Bros. & Rutter : Printing and Binding 23 08 ; Mrs. Hubertus: Postage Stamps,13.00				36 08
L. K. Cameron : Paper, 14.52 ; Stationery, 140.90				155 42
Might Directories : City Directory, 5.00 ; Can. Legal Pub. Co. : Charts and Law Lists, 6.50				11 50
Canada Law Journal : Subscription, 5 00 ; *International Railway Guide* : Subscription, 1.00				6 00
C. Gripton : Rubber Stamps and Repairs, 13.25 ; Can. Transfer Co : Cartage, 1.50				14 75
Planet Bicycle Co. : Part exchange on Bicycle for Messenger				10 00
Twelve months' Services cleaning : T. Rumney, 420.00 : M. Hilliar, 228.00				648 00

REGISTRARS' OFFICE—HIGH COURT. ($9,162.08).

G. S. Holmested	Twelve months'	salary as	Senior Registrar	$2,100 00
J. A. McAndrew	Ten	do	Junior Registrar	1,583 00
A. F. Maclean	Two	do	do	424 72
C. O. Strange	Twelve	do	Clerk	1,200 00
A. Y. Blain		do	do	1,263 70
W. W. Perry		do	Usher and Stenographer	800 00
R. Lawson		do	do	600 00
R. A. Walker		do	do	600 00
Warwick Bros. & Rutter : Printing & Binding, 106 34 ; Rolph Smith & Co. : Stamping, 14.30				120 64
L. K. Cameron : Paper, 25 39 ; Stationery : 284.81				310 20
Mrs. Hubertus : Postage Stamps, 35.00 ; Might Directories : City Directory, 5.00				40 00
Can. Legal Pub. Co. : Charts and Law Lists, 21.25 ; *Canada Law Journal:* Subscription, 5.00				26 25
Circuit Guide : Copies, 9.50 ; *Annual Digest* : Subscription, 3 50				13 00
C. Gripton : Rubber stamps and repairs, 8.75 ; G. R Jones : Copying, 1.00				9 75
G. N. W. Tel. Co. : Telegrams, 24.93 ; C. P. R. Tel. Co. : Telegrams, 27.44				52 37
Can. Express Co. : Express charges, .80 ; Can. Transfer Co. : Cartage, 3.00				3 80
Planet Bicycle Co. ; Part cost exchange on bicycle for messenger				10 00
G. S. Holmested, Petty office expenses				4 65

WEEKLY COURT ($1,781.91).

A. F. Maclean	Nine and one half months'	salary as	Clerk of Court	1,378 36
G. M. Lee,	Two	do	do	371 65
L. K. Cameron : Stationery, 12.40 ; Mrs. Hubertus : Postage stamps, 16.00				28 40
Can. Legal Pub. Co : Chart and law lists, 3.25 ; Can. Transfer Co. : Cartage, 1.25				3 50

SURROGATE OFFICE. ($3,107.80).

C. J McCabe	Twelve months'	salary as	Surrogate Clerk	2,000 00
W. S. Anderson	do	do	Clerk	750 00
F. B. Reade	do	do	Stenographer, one half time	225 00
Warwick Bros. & Rutter : Printing & binding, 11.76 ; Rolph Smith & Co : Stamping, 12 00				23 76
L. K. Cameron : Paper, 6.83 ; Stationery, 67.86 ; Mrs. Hubertus : Postage stamps, 10 00				84 69
C. Gripton : Rubber stamps and repairs, 12.10 ; Might Directories : City directory, 5.00..				17 10
Can. Legal Pub. Co : Charts and law lists, 6.50 ; Can. Transfer Co. : Cartage, .75				7 25

SURROGATE JUDGES, LOCAL MASTERS, Etc. ($26,238 15).

His Honor Judge Elliot	Twelve months'	commutation as	Surrogate Judge	1,000 00
Ardagh	do	do		585 00
McDonald	do	do		600 00
Benson	do	do		840 00
Morgan	do	do		666 00
Morson	do	do		666 00
Deacon	do	do		264 00
Masson	do	do		1,000 00
Price	do	do		752 00
Dean	do	do		500 00

ADMINISTRATION OF JUSTICE.—*Continued.*

SURROGATE JUDGES, LOCAL MASTERS, Etc.—*Continued.*

His Honor Judge Jones	Eleven months'	commutation as	Surrogate Judge	$ 388 00
Hardy	Twelve	do	do	168 00
McCarthy		do	do	168 00
Wilkison		do	do	400 00
Lazier		do	do	500 00
Hughes		do	do	681 00
Barron		do	do	873 00
Barron		do	Local Master	850 00
Dean		do	do	900 00
Jones	Eleven	do	do	525 00
Klein	Twelve	do	do	400 00
J. E. O'Reilly		do	do	3,500 00
S. S. Lazier		do	do	3,000 00
A. M. McKinnon		do	do	2,000 00
Judge Mosgrove	Allowance out of surplus		Surrogate fees, 1901	52 00
Edw. Elliott		do	do	666 00
Moock		do	do	383 40
Woods		do	do	87 25
McHugh		do	do	323 50
J. W. Curry	Allowance as Crown Attorney, Toronto, upon commutation of fees, 63 Vic cap. 17			3,500 00

INSPECTION OF DIVISION COURTS. ($5,893 51).

J. Dickey	Twelve months' salary as	Inspector	1,800 00
W. H. Higgins	do	Assistant Inspector	1,200 00
J. B. Macdonald	do	Clerk	1,050 00
H. A. Locke	do	do and stenographer	500 00
Warwick Bros. & Rutter : Printing & binding, 70 22 ; Rolph Smith & Co. : Stamping, 1.25			71 47
Riordon Paper Mills : Paper, 12.32 ; Mrs. Hubertus : Postage Stamps, 100.00			112 32
L. K. Cameron : Paper, 17 64 ; Stationery : 61.63			79 27
C. P. R. Tel. Co. : Telegrams, 10.77 ; G. N. W. Tel. Co. : Telegrams, 10.36			21 13
Can Law Journal : Subscription, 5.00 ; Can. Legal Pub. Co. : Law list, 2 00			7 00
Globe Pub. Co. : Subscription, 5.00 ; *International Railway Guide* : Subscription, 2.00			7 00
Creelman Bros. : Exchange on typewriter, 90 00 ; J. Dickey, Travelling expenses, 646.72			736 72
W. H. Higgins : Travelling expenses, 288 60 ; Pearl Dawkes : Stenographer, 13.00			301 60
Toronto Ry. Co. : Car tickets, 2.00 ; W. H. Higgins : Petty office expenses, 5.00			7 00

DEPUTY CLERKS OF THE CROWN AND PLEAS ($16,529.61).

J. T. Hewitt	Salary as Dep. Clk. of the Cr'n & Pleas,		Brant	450 00
Matthew Goetz	do		Bruce	450 00
J. P. Featherstone	do		Carleton	450 00
John McLaren	do		Dufferin	450 00
D. McLaws	do		Elgin	450 00
Francis Cleary	do		Essex	450 00
A. McGill	do		Frontenac	450 00
J. Mitchell	do		Haldimand	348 91
W. A Bishop	do		Grey	500 00
W. A. Lawrence	do		Halton	400 00
A. G. Northrup	do		Hastings	450 00
D. McDonald	do		Huron	500 00
James Holmes	do		Kent	450 00
W. R. Gemmill	do		Lambton	450 00
Wm. P. McEwen	do		Lanark	450 00
O.K. Fraser	do		Leeds and Grenville	500 00
W. P. Deroche	do		Lennox, Addington	400 00
J. Clench	do		Lincoln	450 00
J. Macbeth	do		Middlesex	500 00
C. C. Rapelje	do		Norfolk	450 00
E. A. Macnachtan	do		Northumberland and Durham	500 00
L. T. Barclay	do		Ontario	450 00
J. Canfield	do		Oxford	450 00
J. B. Dixon	do		Peel	400 00
W. H. R. Allison	do		Prince Edward	400 00
W. C. Moscrip	do		Perth	450 00
J. Moloney	do		Peterborough	450 00
J. Belanger	do		Prescott and Russell	450 00
M. Mackay	do		Renfrew	400 00
J. A. McDougald	do		Stormont, Dundas & Glengarry	500 00
J. McL Stevenson	do		Simcoe	500 00
W. Grace	Retiring Allowance		Victoria	300 00

ADMINISTRATION OF JUSTICE.—*Continued.*

DEPUTY CLERKS OF THE CROWN AND PLEAS.—*Continued.*

W. Grace	Salary as Dep. Clk. of the Cr'n & Pleas, Victoria		$ 133 33
D. R Anderson	do	do	16 67
J. McDougall	do	Waterloo	450 00
I. P. Willson	do	Welland	400 00
S. H. Ghent	do	Wentworth	430 70
G. McG. Farwell	do	Algoma	50 00
T. H. Murray (acting).	do	do	50 00
J. Meek	do	Thunder Bay	100 00
E. Jordan.	do	Parry Sound	100 00
I. Huber	do	Muskoka	100 00
T. J. Bourke	do	Nipissing	450 00

LOCAL REGISTRARS ($6,349 46).

J. T. Hewitt	Salary as Registrar	Brant	225 00
Matthew Goetz	do	Bruce	225 00
John McLaren	do	Dufferin	225 00
D. McLaws	do	Elgin	225 00
A McGill	do	Frontenac	225 00
J. Mitchell	do	Haldimand	174 46
W. A. Bishop	do	Grey	250 00
W. A. Lawrence	do	Halton	200 00
D. McDonald.	do	Huron	250 00
James Holmes	do	Kent	225 00
W. R. Gemmill	do	Lambton	225 00
Wm. P. McEwen	do	Lanark	225 00
O. K. Fraser	do	Leeds and Grenville	250 00
W. P. Deroche	do	Lennox, Addington	200 00
C. C. Rapelje	do	Norfolk	225 00
E. A. Macnachton	do	Northumberland and Durham	250 00
L. T. Barclay	do	Ontario	225 00
J. B. Dixon	do	Peel	200 00
W. H. R. Allison	do	Prince Edward	200 00
W. C. Moscrip	do	Perth	225 00
J. Moloney	do	Peterborough	225 00
J. Belanger	do	Prescott and Russell	225 00
M. MacKay	do	Renfrew	200 00
J. A. McDougald	do	Stormont, Dundas and Glengarry	250 00
W. Grace	do	Victoria	150 00
D. R. Anderson	do	do	75 00
J. McDougall	do	Waterloo	225 00
I. P. Willson	do	Welland	200 00
G. McG. Farwell	do	Algoma	25 00
T. H. Murray (acting)	do	do	25 00
J. Meek	do	Thunder Bay	50 00
E. Jordan	do	Parry Sound	50 00
I. Huber	do	Muskoka	50 00
T. J. Bourke	do	Nipissing	150 00

LAND TITLES OFFICE ($5,529.27).

J. G. Scott	Twelve months' salary as Master of Titles		3,000 00
H. D. Sinclair	do	Chief Clerk	1,000 00
W. MacTavish	do	Clerk	900 00
Warwick Bros. & Rutter, printing and binding, 93.21; C. Gripton, repairs and supplies, 75c.			93 96
L K Cameron, paper, 2.60; stationery, 53.46			56 06
Might Directories, city directory, 5.00;	Can. Legal Pub. Co., law list, 2.00		7 00
H. C. Russell, clerk, $2.25 day, 454 50;	Can. Transfer Co., cartage, 1.50		456 00
J. G. Scott, travelling expenses, 7.22; petty office expenses, 9.03			16 25

LOCAL MASTER OF TITLES IN THE DISTRICTS ($3,783.08).

H. C. Hamilton	Allowance as Local Master, Sault Ste. Marie		623 50
P. McCurry	do	Parry Sound	478 00
J. E. Lount	do	Bracebridge	308 00
J. M Munroe	do	Port Arthur	412 85
A. G. Browning	do	North Bay	124 00
John Loughrin	do	do	171 00
F. J. Apjohn	do	Rat Portage	976 00
W L. Scott	do	Ottawa	33 00
J. H. Coyne	do	St. Thomas	28 80

ADMINISTRATION OF JUSTICE.—*Continued.*

LOCAL MASTER OF TITLES IN THE DISTRICTS.—*Continued.*

Sault Ste. Marie:—	
N. Simpson, rent of office, 87.76 ; Dom. Express Co., express charges, 1.80	$89 56
W. J. Hessin & Co., filing case, etc., 5.00 ; L. K. Cameron, stationery. 7.75.....	12 75
Warwick Bros. & Rutter, ptg and bdg, 3.85 ; G. G. Farwell, 6 tons coal 7.25, 43.50	47 35
North Bay:—	
Can. Express Co., charges, 2.55 ; L. K. Cameron, stationery, 20.75.....	23 30
Warwick Bros. & Rutter, ptg and bdg, 12.65 ; Office Specialty Co., deed boxes, 9.00	21 65
Rat Portage:—	
Citizens Tel. & Electric Co., light, 39.80 ; Dom. Express Co., charges, 2.75	42 55
Horne & Taylor, book shelves, 6.00 ; D. Bain & Co., registers, 28.00.....	34 00
Jacob Hose, stove, etc	7 20
Parry Sound:—	
C. Gripton, rubber stamp, 1.25 ; Can. Express Co., charges, 90c	2 15
Warwick Bros. & Rutter, ptg and bdg, 18.73 ; Office Specialty Co., deed boxes, 9.00	27 73
Bracebridge:—	
D. Bain & Co., registers	15 75
Port Arthur:—	
Office Specialty Co., document files	127 50
General:—	
Can. Transfer Co., cartage, 50c ; L. K. Cameron, paper, 26.16	26 66
Warwick Bros. & Rutter, printing, 3.75 ; L. K. Cameron, stationery, 3.25...	7 00
J. G. Scott, travelling expenses and disbursements	142 78

DRAINAGE TRIALS, ACT ($3,800.30).

J. B. Rankin.....Twelve months' salary as Referee	2,000 00
E. I. Scully ..... do Stenographer.....	900 00
L. K. Cameron, stationery, 127.90 : Can. Express Co., express charges, 3.95	131 85
Can. Typewriter Exchange, supplies, 7.60 ; J. B. Rankin, travelling expenses, 455.80 ...	463 40
E. I. Scully, travelling expenses.....	305 05

DISTRICT OF ALGOMA ($20,622.23).

W. A. Quibell.....Twelve months' salary as Stipendiary Magistrate.....	1,400 00
Geo. Burden.... ... do do	900 00
W. H. Carney.... . do Sheriff	1,400 00
J. J. Kehoe ..... do Clerk of Peace and District Attorney	400 00
G. McG. Farwell...Six do Clerk of District Court	300 00
T. H. Murray ..... do do	300 00
R. Rush ....Twelve do Constable	400 00
W. H. Carney.....Allowance for rent of office.....	50 00
J. J. Kehoe ..... do	100 00
G. McG. Farwell... do	75 00
T. H. Murray ..... do	75 00
Alex. Thorburn ....Twelve months' salary as Lock-up Keeper, Gore Bay	300 00
Mrs. A. Thorburn .. do Matron do	100 00
A. McKellar ..... do Gaoler, Sault Ste. Marie	600 00
Mrs. A. McKellar .. do Matron do	125 00
C. B. Harris..... do Turnkey do	462 50
Thos. Gorley..... do Lock-up Keeper, Manitowaning	200 00
John G. Sims ..... do do Little Current.....	200 00
Homer Bedford.....Six do Gaoler, Mine Centre	150 00
W. H. Carney, Local Treasurer, to pay Administration of Justice accounts:—	
December qr., 2,390.67 ; March qr., 3,241.90 ; June qr., 2,169.27 ; September qr., 3,646.45 ; December, qr., 1,200.....	12,648 29
Gaol, etc., Sault Ste Marie:—	
D. Bain & Co., abstract indexes, registers, etc., 204.50 ; freight charges, 2.00 ; Kenneth Wright, repairing cells, 8.50 ; P. M. Kissock, reglazing, 2.60 ; J. Jenkins & Son, repairing cell doors, 2.00 ; Robinson & Rennie, moving safe, 15.00 ; L. K. Cameron, stationery, 28.50	263 10
Registry Office, Gore Bay:—	
J. Liddicott, repg steps, 1.50 ; Alex. Thorne, masonry, 5.28 ; N. Smith, lumber, 8.60..	15 38
Lock-up, Webbwood:—	
C. P. Ry. Co., freight charges on blankets, 95c ; W. Gagnon, benches, 2.00 ; Purvis Bros., stove, pipe, etc., 8.35.....	11 30
General:—	
Hart & Riddell, Division Court books, 13.56 ; Can. Express Co., charges, 1.30.....	14 86
Dom. Express Co., charges	65
George Burden, balance, travelling expenses, 1901	43 80
W. Greer, expenses murder case, 3.50 ; arson case, 20.05	23 55
J. E. Rogers, expenses murder case	63 80

ADMINISTRATION OF JUSTICE.—*Continued.*

DISTRICT OF THUNDER BAY ($10,384 36.)

A. W. Thompson	Twelve months' salary as	Sheriff and Local Treasurer	$1,200 00
J. Meek	do	Clerk of District Court	450 00
David Mills, Acting	do	Clerk of Peace and District Atty	273 10
Thos. Penfold	do	Gaoler, Pt. Arthur	600 00
Nettie Penfold	do	Matron, do	175 00
R. McNabb	do	Gaoler, Fort William	500 00
Janet McNabb	do	Matron, do	100 00

A. W. Thompson, Local Treasurer: Expenditure, December qr, 1,827.62; March qr, 1,699.34; June qr, 1,486.55; September qr, 1,303.97; December qr, 600.00 ..... 6,917 48

Gaol, Fort William:—J. & T. M. Piper: Pipe, trap, etc 12 30

Registrar:—Dom. Express Co: Charges, 11.50; Warwick Bros. & Rutter: Registers, etc, 144.98 ..... 156 48

DISTRICT OF RAINY RIVER ($13,770.64)

Jas. Robinson	Twelve months' salary as	Stipendiary Magistrate and Local Treasurer	900 00
Wm. Young	do	Police Magistrate	800 00
Wm. J. Moran	Services as	Acting Sheriff	250 00
J. W. Humble	Nine months' salary as	Sheriff	750 00
F. J. Apjohn	Twelve do	Registrar and Clerk District Court	700 00
Wm. J. Moran	do	Crown Attorney and Clerk of Peace	250 00
W. H. McKay	do	Constable, Rat Portage	900 00
Mrs. W. H. McKay	do	Matron do	200 00
Jno. Perry	Six do	Gaoler, Fort Francis	225 00

James Robinson, Local Treasurer: Expenditure, December qr, 2,296.61; March qr, 1,634.15; June qr, 1,389.13; September qr, 2,594.30; December qr, 500.00 ..... 8,414 19

Gaol, Rat Portage:—
S. C. McGimsie: Lumber, carpentering, etc, 8.00; J. Perry: Meals for prisoners, 3 60
Scott Hudson Bld'g Co: Repairing roof and putting up flag pole, 26.00;
H. Ridout & Co: Repairing furniture, 2.60 ..... 40 20

Mrs. W. H. McKay: Expenses transferring patient from Rat Portage to Mimico L.A. 113 35

J. E. Rogers: Expenses arson case 227 90

DISTRICT OF NIPISSING ($14,056.29).

E. B. Borron	Four months' salary as	Stipendiary Magistrate	249 00
Jno. Loughrin	Seven do	do	955 25
James Kirkwood	Eight and one half	do	531 25
H. C. Varin	Twelve months' salary as	Sheriff and Local Treasurer	900 00
A. G. Browning	do	Clerk of Peace and District Attorney	250 00
T. Keaney	do	Gaoler, Sudbury	400 00
Mrs. T. Keaney	do	Matron, do	100 00
S. A. Huntington	do	Gaoler, North Bay	550 00
Mrs. S. A. Huntington	do	Matron do	120 00
John McMeekin	do	Lock-up Keeper, Mattawa	300 00
Mrs. J McMeekin	do	Matron do	75 00

H. C. Varin, Local Treasurer: Expenditure, December qr, 1,876.07; March qr, 1,103 14; June qr, 2,002.82; September qr, 941,31; December qr, 1,400 00 ..... 7,323 34

W. A. Quibell, Local Treasurer: Expenditure, December qr, 602.91; March qr, 494.02 ..... 1,096 93

H. C. Varin do Sudbury sec., June qr. 273.62; September qr, 300.98 ..... 574 60

Court House and Gaol, North Bay:—Standard Fuel Co: 38½ tons coal at 8.03, 309.16;
McDonald & Hay: Pipe, iron, etc. 24.37; H. Marceau: Repairing doors, 10.15;
J. Blauchett: Paints, oils, etc. 9.30; Thomas & Co: Wall paper, 26.97;
L. K. Cameron: Stationery, 16 70; Can Express Co: Charges, 1.90;
L. K. Cameron: Registers, 14.50 ..... 413 05

Court House, Mattawa:—
P. Pigeon. Tinsmithing, 10.25; E. C. LeBlanc: Sawdust and gravel, 60.50;
E. C. Shepherd: Hot water boiler, etc, 11.85; W. A. Martyn: Plastering & masonry, 8.25;
W. H. Witcher: Painting & papering, 14.65; D. Bain & Co: Sur. Ct. registers, etc, 23.00;
D. Bain & Co: By-law book and indexes, 8.25 ..... 136 75

Lock-up, Sudbury:—R. Horne: Window bars, cement, brick, 21.37; carpentering, 23.00 .... 44 37

Hart & Riddell: Bailiffs' books, 12.95; S. Huntington: Expenses prisoner N. Bay to C. P., 23.80 ..... 36 75

DISTRICT OF MUSKOKA ($8,546.29).

W. H. Spencer	Twelve months' salary as	Police Magistrate (including trav. expenses)	500 00
J. A. Bettes	do	Sheriff	500 00
Thomas Johnson	do	Clerk of Peace and District Attorney	250 00
I. Huber	do	Clerk of District Court	450 00
R. Mills	do	Gaoler, Bracebridge	500 00
Mrs R. Mills	do	Matron do	50 00
F. Francis	do	Gaoler, Huntsville	200 00

J. E. Lount, Local Treasurer: Expenditure, December qr, 1,522.83; March qr, 469.53; June qr, 1,957.09; September qr, 479.52; December qr, 1,250.00 ..... 5,678 97

Registry Office, Bracebridge:—Can Express Co: Charges, 1.45; J. H. Tait, rep'g doors, 1 66;
Warwick Bros. & Rutter: Registers, 86.00; D. Bain & Co: Fee and Cash Book, 8.25;
Geo. Whitten: Glass, etc, 3.15; repairing eave troughs, 8.20;
Standard Fuel Co: 39.12 tons coal at 7.63, 304 13 ..... 412 84

Lock-up, Huntsville:—J. E. Worsley: Galvanized iron work 4 48

ADMINISTRATION OF JUSTICE.—*Continued.*

DISTRICT OF PARRY SOUND ($10,749.45)

J. Farrer	Twelve months' salary as	Police Magistrate		$600 00
S. Armstrong	do	Sheriff		500 00
W. L. Haight	do	Clerk of Peace and District Attorney		250 00
E. Jordan	do	Clerk of District Court		450 00
W. L. Haight	Allowance for rent			100 00
T. W. George	Twelve months' salary as	Gaoler, Parry Sound		400 00
Mrs. T. W. George	do	Matron,	do	75 00
Wm. Wilson	do	Lock-up Keeper, Burk's Falls		250 00
Mrs. Wm. Wilson	do	Matron,	do	50 00
Richard Rattie	do	Gaoler, French River		50 00
Jno. Fell	Three do	Lock-up Keeper, Byng Inlet		25 00
S. Armstrong, Local Treasurer: Expenditure, December qr, 2,171.89; March qr, 1,105.25; June qr, 1,449.36; September qr, 687.14; December qr, 1,200.00				6,613 64
S. C. McElwain: Eight months' salary as Constable at French River				332 28
do Allowance for board, 160.00;		travelling expenses, 28.75		188 75
E. Patterson: Ten months' salary as Constable at Byng Inlet				416 60
do Allowance for board, 200.00;		travelling expenses, 29.90		229 90
D. McRae: Seven months' salary as Constable at Byng Inlet, 116.66:		do	13.40	130 06
W. Beatty Estate: Tinsmithing, 3.22;	Can Express Co' Charges, 1.70			4 92
W. Greer: Expenses arson case, 9.30; cattle poisoning, 64.00; revolver for McElwain, 10.00;				83 30

DISTRICT OF HALIBURTON ($1,150.00.)

W. Fielding	Twelve months' salary as	Stipendiary Magistrate	800 00
M. Brown	Allowance as	Local Treasurer	150 00
E. C. Young	do	Registrar of Deeds	200 00

DISTRICT OF MANITOULIN ($7,487.71.)

E. H. Jackson	Twelve months' salary as	Sheriff		500 00
A. G. Murray	do	Clerk of Peace and District Attorney		250 00
E. L. Brazenor	Allowance	Local Treasurer		198 33
W. R Abrey	Twelve months' salary as	Registrar and Master of Titles		600 00
A. G. Murray	Seven do	Clerk of District Court, etc (Acting)		259 14
J. M. Fraser	Five do	do		140 86
W. W. McCoy	Twelve do	Constable		350 00
E. L. Brazenor, Local Treasurer. Expenditure, December qr, 818.94; March qr, 808 39; June qr, 1,376.89; September qr, 1,278.11; December qr, 400.00; A. G. Murray, December qr, 500.00				5,182 33
W. Greer: Expenses timber stealing				2 75
Merchants Dock Co: Freight charges and dockage				4 30

PROVINCIAL POLICE NIAGARA AND DETROIT RIVERS ($11,804.99).

Alex. Logan	Twelve months' salary as	Police Magistrate, Niagara River			1,200 00
W. H. Mains	do	Chief Constable	do		1,100 00
R. Griffin	do	Constable	do		976 66
C. A. O'Malley	do	do	do		821 25
P. Kelly	do	do	do		600 00
Martin F. Keeley	Three do	do	do		180 00
Wm. McHattie	Twelve do	do	do		600 00
C. J. Metcalfe	Six do	do	do		368 00
H. M. Sheppard	Seven do	do	do		350 00
A. D. Turner	Six do	do	do		340 00
M. McNamara	do	do	do		333 33
A. E. Davey	Four do	do	do		200 00
M. E. Troup	Three and ½ do	do	do		166 66
Alex. Bartlet	Allowance as Police Magistrate		Detroit River		100 00
A. F. Campeau	Twelve months' salary as	Chief Constable,	do		1,000 00
Chas Mahoney	do	Constable	do		800 00
Andrew Murray	do	do	do		750 00

Niagara River:—

Postmaster: Post stamps and rent of box, 11.60; Bell Tel. Co: Messages, 58.73	70 33
G. N. W. Tel Co: Telegrams, 28.97; C. P. R. Tel Co: Telegrams, 1.62	30 59
J. J. Sidey: Printing and stationery, 14.75; *Niagara Falls Review*: Ptg & Staty, 8.00	22 75
Buckley & Co: Photos of prisoners	12 75
Travelling expenses: Alex Logan, 18.55; R. Griffin, 23.75; M F. Keeley, 16.10; M. McNamara, 17.20; P. Kelly, 38 30; C. J. Metcalfe, 3 50; A. D. Turner, 15.50; W. H. Mains, 53.50; C. A. O'Malley, 14.75; W. McHattie, 15.55; C. McKenzie, 1.45; H. M. Sheppard, 8.50	226 65
Meals for prisoners: C. Baldry, 115.25; H. Williams, 1.00; S. D. Ramey, 11.50	127 75

ADMINISTRATION OF JUSTICE.—*Continued.*

PROVINCIAL POLICE, NIAGARA AND DETROIT RIVERS.—*Continued.*

Niagara River :—

Livery hire: W.G. Henry, 6.00 ; T. Emery, 11.50 ; J. Spencer, 1.00; S.D. Ramey,8.00; E. Hawkins, 1.50 ; T. McDonald, 1.00 ; M. Winslow, 4.00 ; A.D. White,4.00; E. Doyle, 1.00 ; E. Hughes, 1.00 ; J. Shirk, .80 ; J. E. Baxter, .75 ; M. Hamilton, 3.50 ..... $44 05

A. E. Bullock: Cartage stolen goods, .75 ; N. F. Electric Light Co: Light, 9.00 ..... 9 75

Anderson & Logan: Police clothing, 492,00 ; M. Harris: Glass and shade, 1.00 ..... 493 00

P. M. Buckley: Cartridges, 1.30 ; A. E. Yeomans: Assisting constable Griffin, 1.50. 2 80

W. R. Bates, U. S. Marshal: Services and keep of Peckham, extradition case 20 00

Detroit River :—

Postmaster: Rent of box, 4.00 ; Bell Tel Co: Messages, 42.50 ..... 46 50

G. N. W. Tel Co: Telegrams, 4.54 ; C. P. R. Tel Co: Telegrams, 2.08 ..... 6 62

Sarnia Observer: Printing and stationery, 6.00 ; G. E. Copeland: Stationery, 1.76.. 7 76

Record Pcg Co: do 7 50

Police clothing: J. J. Donaghue, 25.00 ; C A. Beaume, 25 00 ; W. Oldham, 25.00; Broderick & Co, 50.00 ; Jordan & Griffith, 25.00 ; J. J. Downie, 50.00 ..... 200 00

Travelling expenses: A. F. Campeau, 82 05 ; C. Mahoney, 52.97 ; A. Murray, 283.42. 418 44

J. Simpson, Services assisting Constable Murray 3.00

Livery hire: J. McFee, 20.50 ; C. McFee, 35 50 ; A. Brown, 2.00 ; T.G. Ferriss,24.00 ; J. G. Kemp, 23.00 ; W. J. Wilkinson, 5.00 ; W. F. Parent, 3.00 ..... 113 00

Dominion Express Co: Charges, .45 ; V. E Marentette: Mounting maps, .65 ..... 1 10

Meals for prisoners: H. Hammond, 2.00 ; J. Simson, 2.75 ..... 4 75

Medbury Estate: Rent of office 50 00

CROWN COUNSEL PROSECUTIONS. ($5,547.44.)

Services, Winter Assizes, 1901:—Algoma: J. J. Kehoe 56 00

Carleton: J. A. Ritchie, 26 00 ; Thunder Bay: N. W. Rowell, 20.00 ..... 46 00

Parry Sound: W. L. Haight, 10.00 ; Rainy River: N. W. Rowell, 215 00 ..... 225 00

York: H. H. Dewart 102 00

Services, Spring Assizes, 1902 :—Brant: J. C. Hegler 20 00

Bruce: John Farley, 39.00 . Carleton: H. Guthrie, 127.00 ..... 166 00

Dufferin John Birnie, 20 00 ; Elgin: W. A. Logie, 20 00 ..... 40 00

Essex: J. C. Hegler, 78.00 ; Frontenac: E. F. B. Johnston, 20.00 ..... 98 00

Grey: H. L. Drayton, 36.00 ; Halton: C. L. Dunbar, 20.00 ..... 56 00

Haldimand: J. R. Harley 81 00

Hastings, W. F Kerr, 20.00 ; Kent: M. G. Cameron, 47 00 ..... 67 00

Leeds & Grenville: C. H. Widdifield, 26 00 ; Lambton: R. C. Clute, 262.00 ..... 288 00

Lanark: E. B. Stone, 20 00 ; Lincoln: J. V. Teetzel, 79.75 ..... 99 75

Lennox & Addington: F. L. Webb 20 00

Middlesex: W. R. Riddell 700 00

Muskoka: C. E. Hewson, 20.00 ; N. & Durham: E Saunders, 26.00 ..... 46 00

Norfolk: W. H. Wardrope, 20.00 ; Nipissing: F. Denton, 20.00 ..... 40 00

Ontario: E C. Huycke, 20.00 ; Oxford: A. O. Jeffrey, 20.00 ..... 40 00

Peterboro: H. O'Leary, 20.00 ; Perth, Jno. King, 77.19 ..... 97 19

Prince Edward: J. R. Brown, 10 00 ; Prescott & Russell, J. L. Dowling, 20.00. ... 30 00

Peel: N. Jeffrey, 20.00 : Renfrew: J A. Allan, 20 00 ..... 40 00

S. D. & Glengarry: W. S. Herrington, 78.00 ; Simcoe: Hon. S. C. Biggs, 20 00 ..... 98 00

Victoria: A. P. Devlin, 10.00 ; Waterloo: L. F. Heyd, 20.00 ..... 30 00

Welland: S. F. Washington, 20.00 ; Wentworth: J. J. Maclaren, 20.00 ..... 40 00

Wellington: John King, 20 00 ; York: R. C. Clute, 132.00 ..... 152 00

Services, Summer Assizes, 1902 :—Algoma: F. A. Anglin 120 00

Manitoulin: F. A. Anglin, 36.00 ; Rainy River: F. A. Anglin, 151 00 ..... 187 00

Thunder Bay: F. A. Anglin, 20 00 ; York: Hugh Guthrie, 20.00 ..... 40 00

Services, Fall Assizes, 1902 :—Brant: J. V. Teetzel 20 00

Bruce: J. C. Hegler, 20.00 ; Carleton: Hugh Guthrie, 121.00 ..... 141 00

Dufferin: A. D. Thompson, 20.00 ; Elgin: L V. McBrady, 20.00 ..... 40 00

Essex: Hugh Guthrie, 20.00 ; Frontenac. W. F. Kerr, 56.00 ..... 76 00

Grey: J. Birnie, 20.00 ; Halton: J. E. Day, 20 00 ..... 40 00

Haldimand: J. R. Harley, 20.00 ; Huron: R. N. Ball, 20.00 ..... 40 00

Hastings: F L. Webb, 72 00 ; Kent, L. F. Heyd, 50.00 ..... 122 00

Lennox & Addington: C. H. Widdifield, 20.00 ; Lanark: J. Williams, 30.00 ..... 50 00

Leeds & Grenville: W. S. Herrington, 26.00 ; Lambton: Alex Stuart, 52.00 ..... 78 00

Middlesex: R. C. Clute, 1,312 00 ; Lincoln: J. V. Teetzel, 20.00 ..... 1,332 00

Northumberland & Durham: D. O'Connell 20 00

Nipissing: D. A. Dunlop, 22 50 ; Muskoka: C. E. Hewson, 20.00 ..... 42 50

Norfolk: W. H. Wardrope, 20 00 ; Oxford: Alex. Stuart, 20.00 ..... 40 00

Ontario: E. C. Huycke, 20 00 ; Peterboro: Hugh O'Leary, 26 00 ..... 46 00

Perth: John King, 20 00 ; Prince Edward: G. E. Deroche, 20.00 ..... 40 00

Peel: D. O. Cameron, 20.00 ; Parry Sound: W. L Haight, 26.00 ..... 46 00

S. D. & Glengarry. J. M. Farrell 104 00

Simcoe: S. F. Washington, 57.00 ; Waterloo: N. Jeffrey, 20.00 ..... 77 00

Wellington: E. Saunders, 20.00 ; Wentworth: J. J. Maclaren, 56.00 ..... 76 00

Victoria: A. P. Devlin 10 00

York: Hon. S. C. Biggs 62 00

Winter Assizes, 1902 :—Thunder Bay: F. A. Anglin 20 00

ADMINISTRATION OF JUSTICE.—*Continued.*

GENERAL ADMINISTRATION OF JUSTICE IN COUNTIES. ($153,723.34).

Expenditure as Treasurer :—

Brant: A. Foster, September quarter, 878.15 ; December quarter, 1,594.96 ; March quarter, 246.46 ; June quarter, 699.72 : September, quarter, 361.31 ;	3,780 60
Bruce: N. Robertson, September quarter, 1,067 29 ; December quarter, 424.35 ; March quarter, 305.78 ; June quarter, 585.88	2,383 30
Carleton: H. Reilly, June quarter, 2,249.24 ; September quarter, 1,232 15 ; December quarter, 1,982.46 ; March quarter, 1,129.65 ; June quarter, 1,737.59 ; September quarter, 1,705.40	10,036 49
Dufferin: C. R. Wheelock, December quarter, 645.44 ; March quarter, 72.25 ; June quarter, 310.15 ; September quarter, 136.82	1,164 66
Elgin: J. McCausland, September quarter, 814 58 ; December quarter, 1,017.55 ; March quarter, 277.29 ; June quarter, 626.53	2,735 95
Essex: H. Morand, September quarter, 925.89 ; December quarter, 1,329.76 ; G. A. Wintemute, March quarter, 560.13 ; June quarter, 1,126.07 ; September quarter, 1,131.48	5,073 33
Frontenac: D. Purdy, December quarter, 582.44 ; March quarter, 391.01 ; June quarter, 672.77 ; September quarter, 546.87	2,193 09
Grey: S. J. Parker, September quarter, 596.04 ; December quarter, 940.72 ; March quarter, 709 22 ; June quarter, 556 32 ; September quarter, 558 78	3,361 08
Haldimand: A. A. Davis, September quarter, 1,034.73 ; December quarter, 814.28 ; March quarter, 376.97 ; June quarter, 734.37	2,960 35
Halton: J. Menzies, December quarter, 331.15 ; March quarter, 220.18 ; June quarter, 383 53 ; September quarter, 191.64	1,126 50
Hastings: Thos. Wills, September quarter 1,408.38 ; December quarter, 1,151.33 ; March quarter, 882.19	3,441 90
Huron: W. Holmes, September quarter, 671.35 ; December quarter, 392 73 ; March quarter, 129.32 ; June quarter, 558.72 ; September quarter, 483 00	2,235 12
Kent: A. L. Shambleau, September quarter, 1,501.38 ; December quarter, 1,692.46 ; March quarter, 1,195.80 ; June quarter, 1,036.72 ; September quarter, 830.68	6,257 04
Lambton: H. Ingram, September quarter, 796.16 ; December quarter, 1,027.88 ; March quarter, 798.30 ; June quarter, 830.33 ; September quarter, 614.10	4,066 77
Lanark: J. Code, December quarter, 431.71 ; March quarter, 340.93 ; June quarter, 684.11 ; September quarter, 414.57	1,871 32
Leeds & Grenville: L. Patton, September quarter, 531.41 ; December quarter, 1,168.18 ; March quarter, 333.13 ; June quarter, 1,115.60 ; September quarter, 796.14	3,944 46
Lennox & Addington: I. Parks, September quarter, 210.68 ; December quarter, 342 27 : March quarter, 452.58 ; June quarter, 514.32 ; September quarter, 292.33	1,812 18
Lincoln: Ira T. Culp, September quarter, 424.78 ; December quarter. 1,132.84 ; March quarter, 680.26 ; June quarter, 739.39 ; September quarter, 461.67	3,438 94
Middlesex: A. M. McEvoy, September quarter. 2,019.98 ; December quarter, 1,837.14 ; March quarter, 1,302.80 ; June quarter, 2,478.92	7,638 84
Norfolk: R. Chrysler, September quarter, 266.65 ; December quarter, 612.39 ; March quarter, 293.51 ; June quarter, 316.03	1,488 58
Northumberland & D: W. F. McNachtan, Dec. quarter, 877.30 ; March quarter, 942.02 ; June quarter, 1,197.59	3,016 91
Ontario: D. McKay, June quarter	798 00
Oxford: H. P. Brown, September quarter, 995.77 ; December quarter, 746.95 ; March quarter, 395.16 ; June quarter, 504 66 ; September quarter, 302.16	2,944 70
Peel: R. Crawford, September quarter, 438.60 ; December quarter, 849.67 ; March quarter, 397.43 ; June quarter, 772.02 ; September quarter, 405.24	2,862 96
Perth: G. Hamilton, September quarter, 845.68 ; December quarter, 843.43 ; March quarter, 811.15 ; June quarter, 555.56 ; September quarter, 594 62	3,650 44
Prescott & Russell: J. Belanger, December qtr, 1900, 676.05 ; March qtr, 261 38 ; June quarter, 685.45 ; September quarter, 466.95 ; December quarter, 414.91 ; March quarter, 280.65	2,785 39
Prince Edward: D. L. Bongard, December quarter, 444.49 ; March quarter, 486.58 : June quarter, 368.32	1,299 59
Renfrew: A. Morris, June quarter, 383.75 ; September quarter, 374.47 ; December quarter, 486.65 ; March quarter, 498.10 ; June quarter, 423.24	2,166 21
Simcoe: A. Craig, June quarter, 873.98 ; September quarter, 985.55 ; December quarter, 1,474.17 ; March quarter, 648.94 ; June quarter, 1.315.07	5,297 71
S. D. & Glengarry: C. J. Mattice, September quarter 369.54 ; Dec. quarter, 850.72 ; March quarter, 507.33 ; June quarter. 515.62 ; September quarter, 427.12	2,670 33
Victoria: J. R. McNeillie, September, 324.54 ; December quarter, 715.75 ; March quarter, 343.11 ; June quarter, 159.42	1,542 82
Waterloo: H. J. Bowman, September quarter, 1900, 601.63 ; December quarter, 725.62 ; March quarter, 444.51 ; June quarter, 625.71 ; September quarter, 325.97 ; December quarter, 1,011.87 ; March quarter, 536.76 ; June quarter, 645.32	4,917 39
Welland: C. B. Bennett, September quarter, 785.47 ; December quarter, 605.51 ; March quarter, 477.78 ; June quarter, 1,080 84	2,949 60
Wellington: W. Reynolds, December quarter, 1,459 03 ; March quarter, 985.43 ; June quarter, 600.77 ; September quarter, 1,298.55	4,343 78
Wentworth: A. Cochrane, September quarter, 1,384.66 ; December quarter, 1,715.68 ; March quarter, 1,261.11 ; June quarter, 1,437.94 ; September quarter, 1,101.86	6,901 25

ADMINISTRATION OF JUSTICE.—*Continued.*

GENERAL ADMINISTRATION OF JUSTICE IN COUNTIES.—*Continued.*

Expenditure as Treasurer :—	
York: J. K. McDonald, September quarter, 3,790.60; December quarter, 4,770.22; March quarter, 601.70	$9,162 52
City of Toronto: R. T. Coady, June quarter, 1.681.23; September quarter, 1,065.81; December quarter, 2.630.72; March quarter, 929.21	6,306 97
City of Hamilton: A. Stuart, September quarter, 308 57; December quarter, 632.58; March quarter, 365.76; June quarter, 253.47; September quarter, 294.10	1,864 48
Expenses and disbursements, Provincial detectives, etc :—	
Brant: J. W. Murray, 143 83; J. E. Rogers, 104.74; W. Greer, 128.65	377 22
Bruce: J. E Rogers, 21.65; W. Greer, 24.00	45 65
Carleton: J. W. Murray, 59.70; J. E Rogers, 42 85	102 55
Durham: do 21.25; W Greer, 27.40	48 65
Dufferin: Judge Mahaffey, services and expenses presiding, McCarthy assault case	47 40
Elgin: J. W. Murray, 191 22; W. Greer, 14.80	206 02
Frontenac: do 33.30; J. E Rogers, 28.05	61 35
Hon J. B. Rogers, legal services, extradition Arnold Cranston	18 80
W. S. Cole, do do do	26 88
T. J. Ballard, board of prisoner, do	35 85
Grey: J. E Rogers	22 05
Halton: J. W. Murray	12 80
Hastings: do	29 90
Kent: do 453 56; J. E. Rogers, 51 70	505 26
Lambton: W. Greer, 170 45; do 543 70	714 15
Lennox and Addington: J. E. Rogers	24 80
Lincoln: J. E. Rogers, 24 25; J. W. Murray, 13 65	37 90
Middlesex: J. W. Murray	268 12
Northumberland: W. Greer	69 40
Ontario: W. Greer, 12.90; J. E. Rogers, 11 30	24 20
Oxford: J. W. Murray	19 80
Peel: W. Greer	13 60
Perth: J W. Murray, 26 50; Arnoldi & Johnston, costs, Queen *v.* Scully, 213.66	240 16
Peterboro: W. Greer	37 95
Prescott and Russell: J. W. Murray	40 00
Renfrew: W. Greer	30 70
Stormont, Dundas and Glengarry: J. W. Murray	795 54
Simcoe: W. Greer	125 15
Victoria: do	68 15
Waterloo: J. E. Rogers, 18.10; W. Greer, 56.55	74 65
Welland: J. W. Murray, 115 25; J. E Rogers, 109.25; W. Greer, 70.80	295 30
J. W. Finney, legal services, extradition J. R. Peckham	150 00
D. J. Davidson, commissioner's costs, do	41 80
Wentworth: J. E. Rogers, 13.55; W Greer, 9.89	23 44
Wellington: do	13 25
York: W. Greer, 65 25; J. C. Ames, fees as U.S. marshall, extradition A. J. Walsh, 5.32	70 57
J. E Rogers: Tramp nuisance, 10.50; postage, 3.00; printing summons, 7.00; flash lights, 10.50; cartridges, 2.00	63 00
W. Greer: To pay expert on handwriting, Stewart *v.* Fleming	15 00
John English: Twelve months' salary as Provincial Bailiff	1,200 00
do Travelling expenses and disbursements, transfer of prisoners	3,200 00
Philip Simser: do do do	143 05
J. J. Ryan: do do do	6 00
I. J. Johnston: do do do	26 85
Rice Lewis & Son: Handcuffs for Bailiff English	16 30
Clothing, etc., for discharged prisoners :—	
C. P. Industries, 2,670.08; John Macdonald & Co , 72.40; Robert Simpson Co., 376.11; F. Hall & Son, 1 00; Reformatory for Boys, 467.50; J. Jamieson, 93.39; C. G. Gendron, 132 00; Mercer Reformatory, 217.40; W. R. Brock & Co . 56.95; S. F. McKinnon & Co., 16.75; Cummings & Sellers, 10.00; L. Farewell, 3.00; J. Guinane, 8.00; Julian Sale Leather Goods Co., 6.00; Langmuir Mfg. Co., trunks, 6.75	4,137 33
Clothing, etc., for Bailiff: C. P. Industries, 23.00; John Macdonald & Co., 20.25	43 25
To pay carriage of discharged prisoners :—	
Alexander Jaffray, 1,500 00; R. W. Laird, 300 00; W. P. Band, 250.00	2,050 00
J. E. Farewell: Services and disbursements *re* prosecution bribery, S. Ontario	1,540 00
W. C. Irving: Auditing accounts, Renfrew, 50.00; postage, 2.00	52 00
S. H. Ghent: do Wentworth	50 00

INSPECTION OF OFFICES UNDER JUDICATURE ACT, ($4,151.45).

James Fleming....Ten months' salary as Inspector	2,000 00
J. A. McAndrew, Two and a half months' salary as Inspector	538 00
W. F. Grant . . Twelve months' salary as Clerk	1,100 00
Warwick Bro's & Rutter: Printing and binding, 30 47; Riordon Paper Mills: Paper, 3.75	34 22
L. K. Cameron: Paper, 7.08; stationery, 22.80; Mrs. Hubertus: Postage stamps, 30.00	59 88
J. McMahon: Postage stamps, 10.00; Can. Legal Pub. Co.: Chart and law list, 3.25	13 25
Can. Law Journal: Subscription, 10.00; Can. Express Co.: Charges, 65c	10 65
Can. Transfer Co.: Cartage, 75; Planet Bicycle Co.: Part exchange on wheel, 10.00	10 75
James Fleming: Travelling expenses, 184.70; J. A. McAndrew: Travelling expenses, 200.00	384 70

ADMINISTRATION OF JUSTICE —*Continued.*

CRIMINAL INVESTIGATIONS, ($4 405.00).

J. W. Murray:	Twelve months' salary as Chief Inspector	$1,725 00
J. E. Rogers:	do Inspector	1,425 00
Wm. Greer:	do do	1,150 00
Employers' Liability Co.:	Premium on accident policy of Chief Inspector	35 00
London Guarantee & Accident Co.:	Premium on accident policies of Inspectors	70 00

SHERIFF'S FEES, ETC., ($9,258.04)

Attendance at Court as Sheriff:—

Brant: W. W. Watt, Jr.	66 80	Bruce: C. V. Parke	141 50
Carleton: J. Sweetland	598 60	Elgin: D. Brown	145 75
Essex: J. C Iler	481 10	Frontenac: T. Dawson	104 00
Grey: C. H. Moore	177 50	Haldimand: R. H Davis	20 00
Hastings: G. F. Hope	98 00	Huron: R G. Reynolds	177 40
Kent: J. R. Gemmill	84 55	Lambton: J. F. Flintoft	76 40
Leeds and Grenville: Geo. A. Dana	119 25	Lincoln. T. C. Dawson	70 75
Middlesex: D. M. Cameron	338 00	Norfolk: Jos. Jackson	48 95
Northumberland and Dur.: J. O. Proctor	76 25	Ontario: J F. Paxton	48 85
Oxford: James Brady	155 00	Peel: R. Broddy	16 80
Perth: J. Hoskie	40 25	Peterborough: J. A. Hall	89 00
Prince Edward: J. Gillespie	15 00	Renfrew: W. Moffatt	16 40
Simcoe: C. Drury	68 25	S., D. & Glengarry: A. McNab	94 00
Victoria: J. M. McLennan	72 05	Waterloo: J. Motz	49 00
Welland: James Smith	13 00	Wellington: A. S Allan	64 70
Wentworth: J. T. Middleton	280 80	York: J. H. Widdifield	1,667 60
Toronto: Fred Mowat	1,060 00		

Attendance at Court D. C. C. & Pleas:—

Brant: J. T. Hewitt	48 08	Bruce: M. Goetz	32 13
Carleton: J P. Featherst ne	108 60	Bruce: W. L. Scott, acting	80 00
Dufferin: J. McLaren	36 22	Elgin: D. McLaws	60 06
Essex: F. Cleary	56 38	Elgin: J F. Hare, acting	60 00
Frontenac: A. McGill	32 20	Grey W. A. Bishop	64 06
Haldimand: J. Mitchell	24 20	Halton: W. A. Lawrence	8 06
Hastings: A. G. Northrup	24 50	Huron: D. McDonald	52 70
Kent: J. Holmes	56 50	Lambton: W. R. Gemmill	60 50
Lanark: W. P. McEwen	56 00	Leeds and G.: O. K. Fraser	32 34
Lennox and Addington: W. P. Deroche.	44 22	Lincoln. J. Clench	24 26
Middlesex: R. K. Cowan	24 00	Middlesex: J. McBeth, acting.	144 40
Norfolk: C. C. Rapelje	24 19	Ontario: L. T. Barclay	32 24
Oxford: W. T. McMullen	52 00	Oxford: J. Canfield	36 15
Peel: J. B. Dixon	24 12	Perth: W. C. Moscrip	60 20
Peterboro: J. Moloney	52 16	Prescott and R.: J. Belanger.	16 00
Prince Edward: W. H. R. Allison	20 16	Renfrew: M. McKay	24 00
Simcoe: J. Stevenson	16 40	S., D.&Glen.: J. A. McDougald	80 14
Victoria: W. Grace	8 10	Victoria: W. A McMurray, act.	12 00
Victoria: D. R. Anderson, acting	8 02	Waterloo: J. McDougall	44 06
Welland: I. P. Willson	12 25	Wentworth: S. H. Ghent	172 56
Wellington: A. McKinnon	20 12	York: J. Henderson, crier	650 00
Algoma: G. M. Farwell	16 00	Algoma: T. H. Murray, acting	44 12
Muskoka: I. Huber	20 14	Nipissing: T. J. Bourke	16 00
Rainy River: F. J. Apjohn	48 00	Thunder Bay: James Meek	44 00

9,258 04

SEALS AND OTHER CONTINGENCIES ($268.15).

C. Gripton	Seal and press, 4th Division Court, Algoma	6 60
do	do 5th do Rainy River	6 50
Rolph, Smith & Co.	Seal and Press, Surrogate Court, Huron	3 75
C. Gripton	Court seal, County Victoria, 6.40; Can. Express Co. charges, 1.10.	7 50
Alex. Cullen	Repairing seal 4th Division Court, Victoria	3 00
J. W. Kerr	Services re temporary appointment of clerk, 6th Division Court, Northumberland and Durham	5 00
Ira Lewis	Services re death R. Hunter, 4th Division Court, Huron	8 80
Hugh Munro	Costs of magistrate. Rex v. Gagnon	107 00
H. McBeth	Secretary Law Society, contribution towards telephone service, Osgoode Hall	120 00

CONSTITUTIONAL QUESTIONS ($5,476.05).

Æ. Irving	Legal services: Ontario Power Co., Niagara Falls	745 00
do	Fort Erie Ry. Co., 220.00; Canadian Niagara Power Co., 40.00	260 00
do	Yule Bridge, 30.00; Fisheries Question, 230.00	260 00
do	Rights of Ontario to Chaudiere Islands, Ottawa River	150 00
do	Noble v. Malcolm, title to Squaw Island, Georgian Bay	50 00
do	Buffalo Railway Companies bill	40 00
do	Travelling expenses, Fisheries question 53.36, Ontario Power Co. 55 61	108 97
do	do Rights Ontario to Chaudiere Islands, Ottawa River	30 70

ADMINISTRATION OF JUSTICE.—*Concluded.* EDUCATION.

CONSTITUTIONAL QUESTIONS.—*Continued.*

Hon. E. Blake.....	Legal services,	re	appeal to Privy Council, Ont. Mining Co. v. Seybold	$1,838 30
do	do		Attorney-General Ontario v. Hamilton Street Ry. Co..	53 69
do	do		Hudson Bay Co. Act licensing extra Prov'l Corporations	64 77
W. R. Riddell..	do		As to validity legislation re trading stamps.....	250 00
S. V. Blake.....	do		Appeal to Privy Council, Ont. Mining Co. v. Seybold.	244 16
do	do		do Atty. Gen. v. Hamilton St. Ry. Co.	500 00
Blake, Lash & Cassels.	do		Liquor law, 275.00; Mines Act, 300.00; Act licensing extra Provincial Corporations, 100.00.....	675 00
Kerr, Davidson & Co.	do		Lord's Day Act.....	99 07
Wyld & Csler.....	do		Dominion and Railway Powers Bill at Ottawa	31 39
Macdonald, Shepley &c.	do		Yule Bridge.....	50 00
Hon. J. M. Gibson....	Special expenses in England re Ontario Mining Co. v. Seybold and Attorney General Ontario v. Attorney General Dominion.....			25 00

GROUPED COUNTIES ($815.40).

His Honour Judge Harding	Services and expenses.....			155 85
do	Price	do	....	330 40
do	Wilkison .	do	....	329 15

SHORTHAND REPORTERS ($10,700.00).

A. H. Crawford....	Twelve months' salary as Court Reporter.....			1,600 00
A. J. Henderson...	do	do	....	1,500 00
R. Tyson.....	do	do	....	1,500 00
E. E. Horton	do	do	.....	1,500 00
F. V. Dickson.....	do	do	....	1,150 00
N. R. Butcher	do	do	.....	1,150 00
H. J. Emerson .. .	do	do	.....	1,150 00
J. Agnew	do	do	....	1,150 00

COUNTY LAW LIBRARIES ($1,200.00).

Treasurer Ontario to pay Library :—	
Brant, 46.28; Bruce, 42.76; Carlton, 60.68; Elgin, 45.96; Essex, 46.60; Frontenac, 47.88; Grey, 44.36; Wentworth, 61.00; Hastings, 45.64; Huron, 48.52; Kent, 48.20; Leeds, 49.80; Victoria, 45.48; Middlesex, 60.04; Norfolk, 44.04; Ontario, 43 40; Oxford, 47.72; Perth, 44.90; Peterboro, 46.92; Rainy River, 43.40; Simcoe, 51.40; Stormont, 47.24; Welland, 44.90; Wellington, 46.60; Waterloo, 46.28.....	1,200 00
Total Administration of Justice	432,753 54

EDUCATION.

PUBLIC SCHOOLS ($217,754.07).

Treasurer, County of—	
Brant, 1,667 00: Bruce, 4,331.00; Carleton, 3,005.00; Dufferin, 1,976 00; Elgin, 2,854.00; Essex, 3,275.00; Frontenac, 2,287; Grey, 5,819.00; Haldimand, 1,838.00; Haliburton, 732 00; Halton, 1,450.00; Hastings, 4,029.00; Huron, 5,073.00; Kent, 3,846.00; Lambton, 3,959.00; Lanark, 2,238.00; Leeds and Grenville, 4,009.00; Lennox and Addington, 2,193.00; Lincoln, 1,669 00; Middlesex, 5,190.00; Norfolk, 2,564 00; Northumberland and Durham, 4,906.00; Ontario, 3,289 00; Oxford, 3,502.00; Peel, 1,992.00; Perth, 3,358 00; Peterboro, 2,278.00; Prescott and Russell, 2,218.00; Prince Edward, 1,505.00; Renfrew, 3,956.00; Simcoe, 6,028.00; S., D. and Glengarry, 5,483.00; Victoria, 2,387.00; Waterloo, 2,545.00; Welland, 1,988.00; Wellington, 3,676.00; Wentworth, 2,755.00; York, 4,797.00....	120,667 00
Treasurer, City of—	
Belleville, 946 00; Brantford, 1,793.00; Chatham, 872.00; Guelph, 1,088.00; Hamilton, 5,507 00; Kingston, 1,739 00; London, 4,142.00; Ottawa, 3,504.00; St. Catharines, 1,046.00; St. Thomas, 1,271.00; Stratford, 1,059.00; Toronto, 21,714.00; Woodstock, 1,129.00; Windsor, 1,222.00	47,032 00

EDUCATION.—*Continued.*

PUBLIC SCHOOLS.—*Continued.*

Treasurer, Town of—

Alliston, 168.00 ; Almonte, 270 00 ; Amherstburg, 129.00 ; Arnprior, 293.00 ;
Aurora, 179.00 ; Aylmer, 266.00 ; Barrie, 624 00 ; Berlin, 934.00 ;
Blenheim, 204.00 ; Bothwell, 102.00 ; Bowmanville, 333.00 ; Bracebridge, 282.00 ;
Brampton, 343.00 ; Brockville, 906.00 ; Carleton Place, 497.00 ; Clinton, 297.00 ;
Cobourg, 382.00 ; Collingwood, 718.00 ; Cornwall, 306.00 ; Copper Cliff, 281.00 ;
Dresden, 184.00 ; Dundas, 338.00 ; Dunnville, 261.00 ; Durham, 171.00 ;
Deseronto, 457.00 Essex, 172.00 ; Forest, 193.00 ; Fort William, 411.00 ;
Galt, 910.00 ; Gananoque, 454.00 ; Goderich, 438.00 ; Gore Bay, 110 00 ;
Gravenhurst. 259.00 ; Hespeler, 312.00 ; Harriston. 204.00 ; Hawkesbury, 50 00 ;
Huntsville, 273 00 ; Ingersoll, 507.00 ; Kincardine, 265 00 ; Kingsville, 222 00 ;
Leamington, 291.00 ; Lindsay, 648 00 ; Listowel, 317 00 ; Little Current, 113 00 ;
Mattawa, 55.00 ; Meaford, 231.00 ; Midland. 370 00 ; Mitchell, 238.00 ;
Milton, 161.00 ; Mt. Forest, 251.00 ; Napanee, 348 00 ; Newmarket, 239 00 ;
Niagara, 150.00 ; Niagara Falls, 455.00 ; North Bay, 204 00 ; North Toronto, 223.00 ;
Oakville, 187.00 ; Orangeville, 500.00 ; Orillia. 479.00 ; Oshawa, 468.00 ;
Owen Sound, 1,057 00 ; Palmerston, 218 00. Parkhill, 139.00 ; Paris, 348.00 ;
Parry Sound. 357.00 ; Preston, 225 00 ; Pembroke. 379.00. Penetanguishene, 332 00 ;
Perth, 312.00 ; Peterboro, 901.00 ; Petrolea, 523.00 ; Picton, 406 00 ;
Port Arthur, 245.00 ; Port Hope, 499.00 ; Prescott, 241.00 ; Rat Portage, 494.00 ;
Renfrew, 231.00 ; Ridgetown, 304 00 ; Sandwich, 57.00 : Sarnia, 826.00 ;
Sault Ste. Marie. 852.00 ; Simcoe, 367 00 ; Smith's Falls. 661.00 ; Stayner, 147.00 ;
St. Mary's, 379.00 ; Strathroy, 372.00 ; Sudbury, 110 00 ; Seaforth, 226 00.
Sturgeon Falls, 75.00 ; Thessalon, 139.00 ; Thornbury, 92.00 ; Thorold, 183.00 ;
Tilsonburg, 258 00 ; Toronto Junction, 737.00 ; Trenton, 354.00 ; Uxbridge, 193.00 ;
Vankleek Hill, 135.00 ; Walkerton, 250.00 ; Walkerville, 194.00 ; Wallaceburg, 291.00 ;
Waterloo, 369.00 ; Welland, 231.00 ; Whitby, 242.00 ; Wiarton, 279.00 ;
Wingham, 266 00 ..... $35,129 00

Treasurer Village of :—

Acton, 179.00 ; Ailsa Craig, 88.00 ; Alexandria, 43.00 ; Alvinston, 122.00 ;
Arkona, 58.00 ; Arthur, 92.00 ; Athens, 118 00 ; Ayr, 103.00 ;
Ashburnham, 209.00 ; Bath, 42.00 ; Bayfield, 69.00 ; Beamsville, 98.00 ;
Beaverton, 91.00 ; Beeton, 88 00 ; Belle River, 12.00 ; Blyth, 105.00 ;
Bobcaygeon, 109,00 ; Bolton, 77 00 ; Bradford, 122.00 ; Bridgeburg, 161.00 ;
Brighton, 165.00 ; Brussels, 142 00 ; Burks Falls, 93.00 ; Burlington, 161.00 ;
Caledonia, 98.00 ; Campbellford, 306.00 ; Cannington. 152.00 ; Cardinal, 157.00 ;
Casselman, 20.00 ; Cayuga, 138 00 ; Chesley, 215 00 ; Chesterville, 108.00 ;
Chippewa, 56.00 ; Clifford, 72.00 ; Colborne, 125.00 ; Creemore, 79.00 ;
Cobden, 90 00 ; Delhi, 96.00 ; Drayton, 93.00 ; Dundalk, 96.00 ;
Dutton, 100.00 ; East Toronto, 186.00 ; Eganville. 62.00 ; Elmira, 132.00 ;
Elora, 124.00 ; Embro, 72.00 ; Erin. 60.00 ; Exeter, 231.00 ;
Fenelon Falls, 147.00 ; Fergus, 162 00 ; Fort Erie, 100 00 ; Garden Island, 31.00 ;
Georgetown, 163.00 ; Glencoe, 116.00 ; Grand Valley, 96.00 ; Grimsby, 119.00 ;
Hagersville, 109.00 ; Hastings, 60 00 ; Hanover. 170.00 ; Havelock, 119.00 ;
Hensall, 100.00 ; Hintonburg, 160.00 ; Holland Landing, 56.00 ; Iroquois, 138.00 ;
Kemptville, 172 00 ; Lakefield, 142.00 ; Lanark, 110 00 ; Lancaster, 65.00 ;
L'Original, 108.00 ; Lucan, 105.00 ; Lucknow, 181.00 ; Madoc, 141.00 ;
Markdale, 125.00 ; Markham, 136.00 ; Marmora, 111.00 ; Maxville, 85 00 ;
Merrickville, 118 00 ; Merritton, 160.00 ; Millbrook, 110.00 ; Milverton, 85.00 ;
Morrisburg, 196 00 ; Newboro, 53.00 ; Newburgh, 73.00 ; Newbury, 54.00 ;
New Castle, 74 00 ; New Hamburg, 147.00 ; Niagara Falls South, 163.00 ;
Norwich, 170.00 ; Norwood, 112.00 ; Oil Springs, 119.00 ; Omemee, 74.00 ;
Ottawa E., 81.00 ; Paisley, 134.00 ; Prince Edward, 128.00 ; Portsmouth, 47.00 ;
Port Carling, 34.00 ; Port Colborne, 154.00 ; Port Dalhousie, 90.00 ;
Port Dover, 140 00 ; Port Elgin, 155.00 Port Perry, 172.00 ;
Port Rowan, 88 00 ; Port Stanley, 66.00 ; Richmond, 54.00 ;
Richmond Hill, 72.00 ; Rockland, 20.00 ; Shelbourne, 142.00 ; Southampton, 198.00 ;
Springfield, 60 00 ; Stirling, 98 00 ; Stouffville, 147.00 ; Streetsville, 65.00 ;
Sundridge, 49.00 ; Sutton, 72.00 ; Tara, 81.00 ; Teeswater, 110.00 ;
Thamesville, 108.00 ; Thedford, 73.00 ; Tilbury, 63.00 ; Tiverton, 54.00 ;
Tottenham, 69.00 ; Tweed, 148.00 ; Vienna, 41.00 ; Wardsville, 41.00 ;
Waterdown, 82.00 ; Waterford, 127 00 ; Watford, 168.00 ; Wellington, 91.00 ;
Weston, 117 00 ; Winchester, 138 00 ; Woodbridge, 76 00 ; Woodville, 63.00 ;
Wyoming, 89.00 ; Wroxeter, 53.00 ..... $14,508 00

Treasurer, Township Rochester 63.13 ; Sandwich S., 29.96 ; Tilbury N., 165.34 ;
Pelee Island, 76.00 ..... 334 43

Trustee Public School No. 6. Rochester, 5.45 ; No. 4, Sandwich E., 58.81 ;
No. 5, Sandwich S., 16.88 ; Nos. 17-24 Williamsburg and Osnabruck, 2.50 ..... 83 64

SEPARATE SCHOOLS, ($25,125.80).

Treasurer Board R. C. S. S. Section :—

6 Arthur, 29 00 ; 10 Arthur. 56.00 ; 4 Asphodel, 15.00 ; 15 Augusta, 18 00 ;
10 Adjala, 23.00 ; 2 Ashfield, 46.00 ; 3 Alfred, 28.00 ; 6 Alfred. 27.00 ;
7 Alfred, 33.00 ; 8 Alfred, 42.00 ; 9 Alfred, 24.00 ; 10 Alfred, 67.00 ;

EDUCATION.—*Continued.*

SEPARATE SCHOOLS.—*Continued.*

11 Alfred, 23.00 ; 12 Alfred, 26.00 ; 13 Alfred, 29.00 , 14 Alfred, 20.00 ;
15 Alfred, 20 00 : 7 Alfred with 8 Plantagent, 13 00 ; 4 Admaston, 20 00 ;
2-5-8 Anderdon, 58 00 : 3-4 Anderdon, 11.00 ; 2 W. Brant and 3 Greenock, 8.00 ;
4 Bromley, 24.00 ; 6 Bromley, 24.00 ; 7 Bromley, 46.00 ; 1 Brougham, 13.00 ;
1 (15) Brighton, 14.00 ; 2 N Burgess, 27.00 ; 4 N Burgess, 11.00 ; 6 N Burgess, 10.00 ;
3 Biddulph, 13.00 ; 4 Biddulph, 35.00 ; 6 Biddulph, 27.00 ; 9 Biddulph et al, 11.00 ;
3-4-10 Caledonia, 15.00 ; 6 Caledonia with 7 Plantaganet S, 13.00 ; 10 Caledonia, 22 00 ;
12 Caledonia, 42.00 ; 13 Caledonia, 13.00 ; 3 Cambridge, 28.00 ; 4 Cambridge, 19.00 ;
5 Cambridge, 36.00 ; 6 Cambridge, 23.00 ; 6-7 Cambridge, 36 00 ; 14 Cambridge, 15 00 ;
1 Carrick, 33 00 : U 1 Carrick with 1 Culross, 65.00 ; 2 Carrick, 18.00 ;
U 2 Carrick with 2 Culross, 16.00 ; 4 Carrick, 29 00 14 Carrick, 111.00 ;
1 Cornwall, 17.00 : 16 Cornwall, 53.00 ; 4 Crosby N, 70.00 ; 7 Crosby N. 5.00 ;
10 Cumberland, 21 00 ; 11 Cumberland, 15 00 ; 13 Cumberland, 25.00 ;
14 Cumberland, 33.00 ; 5 Clarence, 70 00 ; 6 Clarence, 62 00 ; 8 Clarence, 42.00 ;
11 Clarence, 29 00 ; 12 Clarence, 17.00 ; 13 Clarence, 36.00 ; 14 Clarence, 26.00 ;
16 Clarence, 21.00 ; 17 Clarence, 21 00 : 19 Clarence, 23.00 ; 20 Clarence, 32 56 ;
21 Clarence, 29 00 ; 15 Charlottenburg, 38 00 : 16 Charlottenburg, 25.00 ;
1 U Culross with 1 Carrick, 79.00 : 2 U Culross with 2 Carrick, 20 00 ;
9 Downey, 33.00 ; 3 Dover, 45 00 ; 7 Dover, 34.00 ; 9 Dover, 28 00 ;
2 Edwardsburg, 4.00 : 7 Ellice, 46.00 ; 2 Flamboro W, 14.00 ;
5 Finch, 44.00 : 3 Greenock with 2 Brant, 68.00 ; 5 Glenelg, 43.00 ;
7 Glenelg, 60.00 : 1 Gloucester with 3 Osgoode, 9.00 ; 4-5-12 Gloucester, 12.00 ;
14 Gloucester, 35.00 : 15 Gloucester, 68.00 : 17 Gloucester, 8.00 ;
20 Gloucester, 24.00 ; 22 Gloucester 15 00 : 25 Gloucester, 80.00 ;
26 Gloucester, 20.00 ; 3 Griffiths, 11.00 ; 2 Haldimand, 24.00 ;
14 Haldimand, 18.00 ; 9 Harwich, 25.00 ; 4 Hagarty, 45.00 : 12 Hagarty, 56.00 ;
1 Howe Island, 10.00 : 2 Howe Island, 16 00 ; 3 Howe Island, 14.00 ;
1-(3) Halibert, 16.00 ; 3 Holland and Glenelg, 28.00 ; 2 Hullet, 14.00 ; 1 Hay, 86.00 ;
2 Hawkesbury E, 62.00 ; 4 Hawkesbury E 13.00 ; 6 Hawkesbury E, 16.00 ;
7 Hawkesbury E, 84 00 ; 10 Hawkesbury E, 49.00 ; 11 Hawkesbury E, 24.00 ;
12 Hawkesbury E, 25.00 : 15 Hawkesbury E, 21.00; 16 Hawkesbury E, 8 00 ;
1-3 Hibbert, 25.00 ; 2 Hibbert, Logan & McKillop, 43.00 ; 8 Kingston, 15.00 ;
14 Lancaster, 35 00 ; 12 (a) Lochiel, 25.00 ; 12 (b) Lochiel, 55.00 ; 2 Loughboro, 14.00 ;
10 Loughboro, 20 00 ; 2 W Longueil, 17 00 ; 4 (a) Longueil, 20 00 ; 7 Longueil, 21.00 ;
1 Maidstone, 49 00 ; 3 (a) Malden, 33 00 ; 3 (b) Malden, 24 00 ; 3 Mara, 59.00 ;
3 Mattawatchan, 26.00 ; 3 March, 29.00 ; 1 Marmora and Lake, 2.00 ;
3-4-5 Moore, 34.00 ; 4 Mornington, 26 00 ; 1 McKillop, 17.00 ; 3 McKillop, 18.00 ;
1 McGillivary with 9 Biddulph, 8.00 ; 7 Nepean, 30.00 ; 15 Nepean, 101.00 ;
1 Nichol, 31.00 ; 5 Normanby, 25 00 ; 10 Normanby, 14.00 , 1 Osgoode, 22 00 ;
2 (15) Osgoode, 18.00 ; 3 Osgoode, 11.00 ; 8 Peel, 43.00 ; 12 Peel, 15.00 ;
5 Percy, 12.00 ; 12 Percy, 5.00 ; 4 Plantaganet N, 22.00 ; 7 Plantaganet N, 21.00 ;
8 Plantaganet N, 15.00 ; 9 Plantaganet N, 24.00 ; 12 Plantaganet N, 10 00 ;
4 Plantaganet S, 37.00 : 7 Plantaganet S, 36.00 ; 8 Plantaganet S, 23 00 ;
7 U Plantaganet S, 12.00 ; 8 U Plantaganet S, 9.00 : 6 Proton, 40.00 ;
4 Raleigh, 35.00 ; 5 Raleigh, 23.00 : 6 Raleigh, 35 00 ; 10-17 Richmond, 14 00 ;
2 Rochester with 4 Maidstone, 40.00 ; 6 Rochester, 57.55 ; 7 Rochester, 57.00 :
12 Roxboro, 62.00 : 16 Roxboro, 26.00 : 1 Russell with 12 Winchester, 10.00 ;
4 Russell, 12.00 : 6 Russell, 92.00 ; 7 Russell, 20.00 : 8 Russell, 33.00 ;
13 Russell, 19.00 : 5 Sombra, 26.00 ; 2 Stafford, 31.00 : 6 Stephen, 38.00 ;
1 Sandwich W, 29.00 ; 6-9 Sandwich W, etc, 28 00 ; 1 Sandwich E, 120.00 ;
2 Sandwich E, 33 00 ; 3 Sandwich E, 16.00 ; 4 Sandwich E, 34.19 ;
12 Seymour, 5.00 : 7 Sydenham, 44 00 ; 6 Sunnidale, 3.50 ; 5 Sheffield, 30.00 ;
6 Sherwood, 58.00 : 2 Tiny, 101 00 ; 2 Tilbury N, 10.00 ; 6 Tilbury N, 23.00 ;
6 Toronto Gore, 16.00 ; 18 Tyendinaga, 12.00 ; 20 Tyendinaga, 17.00 ;
24 Tyendinaga, 14.00 : 28 Tyendinaga, 13.00 : 30 Tyendinaga, 14.00 ;
7 Vespra, 7.00 : 13 Waterloo, 60.00 ; 1 Wawanosh W, 33.00 ; 13 Westminster, 21.00 ;
5 Wellesley, 14.00 ; 9-10 Wellesley, 32.00 ; 11 Wellesley, 76.00 ; 12 Wellesley, 20.00 ;
10 Williams, 36.00 ; 15½ Wilmot, 54.00 ; 12 Winchester with 1 Russell, 15.00 ;
8 Windham, 37.00 : 10 Woolwich, 37.00 : 1 Wolfe Island, 7.00 ; 2 Wolfe Island, 17.00 ;
4 Wolfe Island, 28.00 ; 7 Wolfe Island, 12.00 ; 4 Yonge and Escott Rear, 15.00 ;
1 York, 34.00 ..... 6,586 80

Treasurer Board R.C.S.S., City of :—
Belleville, 268.00 : Brantford, 243.00 ; Chatham, 184.00 ; Guelph, 265.00 ;
Hamilton, 1,054 00 ; Kingston, 477.00 ; London, 639.00 ; Ottawa. 3,936 00 ;
St. Catharines, 246.00 ; St. Thomas, 157.00 ; Stratford, 216.00 ; Toronto, 3,404.00 ;
Windsor, 320.00 ..... 11,409 00

Treasurer Board R.C.S.S., Town of :—
Almonte, 101.00 ; Amherstburg, 130 00 ; Arnprior, 175.00 ; Barrie, 115 00 ;
Berlin, 275 00 ; Brockville, 357.00 ; Cobourg, 149.00 ; Cornwall, 456 00 ;
Dundas, 76.00 ; Fort William, 89.00 ; Galt, 64 00 ; Goderich, 57.00 ;
Hawkesbury, 209.00 ; Ingersoll, 70 00 ; Lindsay, 198.00 ; Mattawa, 153 00 ;
Newmarket, 37.00 ; Niagara Falls, 94.00 ; North Bay, 101.00 ; Oakville, 21.00 ;
Orillia, 115.00 ; Oshawa, 57 00 ; Owen Sound, 72.00 ; Parkhill, 32.00 ;
Paris, 51.00 ; Pembroke, 247.00 ; Perth, 132.00 ; Preston, 49.00 ;
Peterboro', 439 00 ; Picton, 37.00 ; Port Arthur, 142.00 ; Prescott, 129.00 ;

EDUCATION.—*Continued.*

SEPARATE SCHOOLS.—*Continued.*

Rat Portage, 142.00 ; Renfrew, 168.00 ; Sarnia, 118.00 ; Sault Ste. Marie, 124.00 ;
Sandwich, 117.00 : Seaforth, 52.00 ; Sudbury, 76.00 ; Sturgeon Falls, 89.00 ;
St. Marys, 37.00 ; Thorold, 86.00 ; Trenton, 149.00 ; Vankleek Hill, 146.00 ;
Whitby, 31 00 ; Waterloo, 67.00 ; Walkerton, 119.00: Wallaceburg, 54.00 .... 6,004 00

Treasurer Board R.C.S.S., Village of :—
Alexandra, 168.00 ; Arthur, 64 00 ; Belle River, 57.00 ; Casselman, 94.00 ;
Elora, 21.00 ; Eganville, 67.00 ; Fergus, 13.00 ; Hastings, 38.00 ;
Hintonburg, 157.00 ; L'Original, 38.00 ; Merritton, 48.00 ; Ottawa E, 78.00 ;
Portsmouth, 25.00 ; Port Dalhousie, 39 00 ; Rockland, 140.00 ; Tilbury, 65.00 ;
Weston, 14.00 .... 1,126 00

POOR SCHOOLS ($12,325.39).

Trustees R.C.S.S. :—
10 Arthur, 15.00 ; 4 Admaston, 50,00 ; 3 Alfred, 25.00 ; 14 Alfred, 40.00 ;
15 Augusta, 50.00 ; 4 Aspbodel, 25.00 ; 2-5-8 Anderdon with 6-9 Sandwich W, 10.00 ;
4 Bromley, 50.00 ; 6 Bromley, 70.00 ; 7. Bromley, 90.00 ; 1 Brougham, 60.00 ;
1 Brighton, 25.00 ; 4 Burgess N, 40 00 . 6 Burgess N, 40.00 ; 15 Charlottenburg, 50 00 ;
16 Charlottenburg, 60.00 ; 7 Crosby N, 60.00 ; 2 Clarence, 50.00 ; 8 Clarence, 22.00 ;
13 Clarence, 25.00 ; 19 Clarence, 23.00 ; 20 Clarence, 18.44 ; 10 Cumberland, 22.00 ;
13 Cumberland, 40.00 ; 14 Cambridge, 35.00 ; 7 Ellice, 10 00 ; 2 Flamboro W, 45.00 ;
5 Finch. 40.00 ; 5 Glenelg, 15.00 ; 7 Glenelg, 10.00 ; 3 Griffith, 75.00 ;
4-5-12 Gloucester, 50.00 ; 15 Gloucester, 100.00 ; 17 Gloucester, 40.00 ; 4 Hagarty, 40.00 ;
12 Hagarty, 70.00 ; 14 Haldimand, 40.00 ; 1 Howe Island, 50.00 ; 2 Howe Island, 40.00 ;
3 Howe Island, 40.00 ; 2 E Hawkesbury, 75.00 ; 4 E Hawkesbury, 40.00 ;
12 E Hawkesbury, 23.00 ; 1 (3) Hibbert, 15.00 ; 1 Hay, 10.00 ; 3 Holland, 10.00 ;
2 Loughboro, 50.00 ; 10 Loughboro, 60.00 ; 7 Longueil, 40.00 ; 3 Matawachan, 75.00 ;
3-4-5 Moore, 15.00 ; 1 Marmora and Lake, 50 00 ; 15 Nepean, 25.00 ; 1 Nichol, 10.00 :
1 Osgoode, 50.00 ; 4 S Plantaganet, 50.00 ; 5 Percy, 20.00 ; 12 Percy & Seymour, 50.00 ;
6 Proton, 15.00 ; 8 Peel, 10.00 ; 10 & 17 Richmond, 65.00 ; 12 Roxboro, 50.00 ;
6 Russell, 50.00 ; 4 Raleigh, 15.00 ; 6 Raleigb, 10.00 ; 6 Rochester, 10.00 ;
6 Sherwood, 60.00 ; 7 Sydenham, 15.00 ; 1 Sandwich E, 20.00 ; 2 Sandwich E, 10 00 ;
4 Sandwich E, 25.00 ; 14 Tyendinaga, 40.00 ; 28 Tyendinaga, 40.00 ;
30 Tyendinaga, 50.00 ; 2 Tiny, 60.00 ; 6 Toronto Gore, 40.00 ; 7 Vespra, 60 00 ;
7 Wolfe Island, 50 00 ; 1 Wawanosh W, 25.00 ; 13 Westminster, 25.00 ;
12 Wellesley, 25.00 ; 10 Williams W, 25.00 ; 4 Yonge and Escott, 50.00..... 3,173 44

Trustees Public School .—
16 Artemesia and Glenelg, 25.00 ; 5 Bastard, 20.00 ; 7 Darlington, 25.00 ;
2 Edwardsburg, 50.00 ; 26 Edwardsburg, 50 00 ; 2 Leeds and Lansdowne Rear, 30 00 ;
7 Leeds and Lansdowne Rear, 30 00 ; 16 Leeds and Lansdowne Rear, 30.00 ;
12 Matchedash, 25.00 ; 7 N. Crosby, 30.00 ; 8 N Crosby, 30 00 ; 11 N Crosby, 30.00 ;
9 Orillia, 25.00 ; 11 Orillia, 25.00 ; 15 Orillia, 25 00 ; 6 Sunnidale, 50 00 ;
8 Tay and Baxter, 50.00 ; 21 Winchester with 12 Russell and 17 Finch, 40.00 ;
11 W Luther, 40.00 .... 630 00

Treasurer County of :—
Bruce (23 schools), 450.00 ; Carleton (10 schools), 300.00 ; Dufferin (1 school), 60.00 ;
Frontenac (31 schools), 735.00 ; Haliburton (57 schools), 2,200 00 ;
Hastings (8 schools), 260.00 ; Lanark (32 schools), 610.00 ;
Lennox and Addington (19 schools), 500.00 ; Ontario (5 schools), 150.00 ;
Peterboro (20 schools), 450.00 ; Renfrew (36 schools), 925 00 ;
Victoria (25 schools), 675.00 .. .. 7,315 00

Treasurer Township of :—
Carlow (5 schools), 111.00 ; Dungannon (6 schools), 120 00 ;
Elziver & Grimsthorp (7 schools), 63.00 ; Faraday (6 schools). 129 00 ;
Huntingdon, 25.00 ; Limerick (3 schools), 24.00 ; Mayo (4 schools), 82 00 ;
Monteagle & Herschell (9 schools), 160.00 ; Madoc, 25 00 ; Marmora, 25.00 ;
Mersea, 75.00 ; Sunnidale, 50.00 ; Tuder & Cashell (6 schools), 95.00 ;
Wicklow & McClure (6 schools), 126.00 ; Wollaston (6 schools), 90.00 .... 1,200 00

Warwick Bros. & Rutter, printing, 6.15 ; L. K. Cameron, paper, 80c 6 95

DISTRICT SCHOOLS ($15,620.00).

Algoma, Manitoulin, etc. :—
Secretary-Treasurer :—1 Awenge, 50.00 ; 2 Allan, 125.00 ; 5 Allan & Gordon, 100.00 ;
1 Assignack, 125.00 ; 2 Assignack, 125.00 ; 3 Assignack, 125 00 ;
6 Assignack, 125.00 ; 7 Assignack, 125.00 ; 1 Aird Island, 100 00 ;
1 Aberdeen, 100.00 ; 2 Aberdeen, 100.00 ; 3 Aberdeen, 100 00 ;
1 Barrie Island, 125.00 ; 1 Bright and Gladstone, 100.00 ;
3 Bright and Bright additional, 100.00 ; 4 Bidwell, 125.00 ; 5 Bidwell, 125.00 ;
6 Bidwell, 125 00 ; 1 Billings and Allen, 125.00 ; 2 Billings and Allen, 125 00 ;
1 Burpee, 125.00 ; 2 Burpee, 125.00 ; 1 Balfour, 100 00 ; 2 Balfour, 100.00 ;
1 Biscotasing, 100.00 ; 1 Balfour and Rayside, 100 00 ; 1 Campbell, 125 00 ;
2 Campbell, 125 00 ; 3 Campbell, 125.00 ; 4 Campbell, 125 ; 1 Cartier, 100.00 ;
1 Carnarvon, 125.00 ; 2 Carnarvon, 125 00 ; 3 Carnarvon, 125 00 ;
6 Carnarvon, 125.00 ; 1 Cockburn Island, 125.00 ; 2 Cockburn Island, 125.00 ;

EDUCATION.—*Continued.*

DISTRICT SCHOOLS.—*Continued.*

1 Chapleau, 100.00 ; 1 Cobden, 100.00 ; 1 Carlyle, 50 00 ;
1 Day and Gladstone, 100.00 ; 2 Day and Kirkwood, 50.00 ; 6 Dilke, 50 00 ;
1 Denison, 100.00 ; 3-4 Denison, 100.00 ; 2 Drury, Denison & Graham, 100.00 ;
1 Dawson, 75.00 ; 3 Drury, Denison and Graham, 100.00 ; 1 Fenwick, 100 00 ;
2 Fenwick, 50.00 ; 2 Gillies & O'Connor, 100.00 ; 1 Gordon, 125.00 ;
4 Gordon, 125 00 ; 5 Gordon and Allen, 25.00 ; 1 Galbraith & Houghton, 100.00 ;
1 Hilton, 125.00 ; 6 Hilton, 125.00 ; 2 Howland, 125.00 ; 3 Howland, 125.00 ;
7 Howland, 125.00 ; 8 Howland, 125.00 ; 1 Hallam, 100.00 ;
2 Hallam & Hay, 100.00 ; 1 Jocelyn, 125.00 ; 2 Jocelyn, 125 00 ;
3 Jocelyn, 125 00 ; 4 Jocelyn, 125.00 ; 1 Johns Island, 100.00 ;
1 Johnston, 100.00 ; 2 Johnston, 100.00 ; 3 Johnston, 100.00 ;
4 Johnston, 100.00 ; 1 Korah, 100.00 ; 2 Korah, 100.00 ; 3 Korah, 100.00 ;
4 Korah, 100.00 ; 5 Korah, 90 00 ; 1 Keewatin, 100.00 ; 1 Laird, 100.00 ; 3 Laird, 100.00 ;
1 Lefroy and Plummer, 100 00 ; 2 Lefroy and Thessalon, 100.00 ; 3 Lefroy, 100.00 ;
1 Long, 100.00 ; 1 Michipicoten Harbour, 100.00 ; 1 Mills, 100 00 ; 1 Macdonald, 100 00 ;
2 Macdonald, 100.00 ; 4 May and Harrow, 100.00 ; 5 May, 100 00 ; 1 Nairn, 100.00 ;
1 Prince, 100 00 ; 2 Prince, 140.00 ; 2 Parkinson, 100.00 ; 1 Patton and Gladstone, 100 00 ;
1 Plummer, 100.00 ; 1 Plummer, additional, 100.00 ; 2 Plummer and Rose, 100.00 ;
1 Robinson, 125,00 ; 2 Rayside, 100.00 ; 3 Rayside, 100.00 ; 1 Rutherford, 100.00 ;
1 Snider and Creighton, 100.00 ; 1 Sandfield, 125.00 ; 2 Sandfield, 125 00 ;
3 Sandfield, 25.00 ; 4 Sandfield, 125 00 ; 1 St. Joseph, 130.00 ; 2 St. Joseph, 130.00 ;
3 St. Joseph, 130.00 ; 4 St. Joseph, 130 00 ; 5 St. Joseph, 130.00 ; 4 Shequindah, 80.00 ;
5 Shequindah, 100.00 ; 1 Salter, 100.00 ; 2 Salter and May, 100 00 ;
3 Salter and Victoria, 100 00 ; 1 Sprague, 100.00 ; 1 Shedden, 100 00 ; 1 Tekummah, 130.00 ;
3 Tekummah, 100,00 ; 4 Tekummah, 50.00 ; 4 Tarentoris, 100.00 ; 5 Tarentoris, 100 00 ;
1 Tarbutt, 100.00 ; 2 Tarbutt and Laird, 100.00 ; 2 Thessalon, 100.00 ; 3 Thessalon, 100.00 ;
1 Thompson, 100.00 : 2 Thompson, 100.00 ; 1 Victoria, 100.00 ; 2 Wa-Wa, 100.00 ;
1 Wells, 100.00 ; 3 Wells, 100.00 ; 1 Waters and Snider, 100.00 ..... 14,215 00

Muskoka District :—
Secretary-Treasurer :—1 Chaffey, 100.00 ; 3 Chaffey, 100.00 ; 5 Chaffey, 100 00 ;
6 Chaffey, 100 00 ; 7 Chaffey, 100.00 ; 8 Chaffey, 100.00 ; 9 Chaffey, 100 00 ;
10 Chaffey, 100 00 ; 2 Franklin, 100.00 ; 3 Franklin, 100 00 ; 4 Franklin, 75.00 ;
5 Franklin, 75.00 ; 6 Franklin, 100.00 ; 1 Sinclair, 100 00 .....
Treasurer Township of :—Brunel, 600 00 ; Cardwell, 400.00 ; Draper, 900 00 ;
Humphrey, 500 00 ; Monck, 600 00 ; Muskoka, 500.00 ; Morrison, 500.00 ; Medora, 800 00 ;
Macaulay, 800 00 ; McLean and Ridout, 500.00 ; Oakley, 200.00 ; Ryde, 550.00 ;
Stisted, 700.00 ; Stephenson, 900 00 ; Watt, 600.00 ; Wood, 400.00 ..... 10,800 00

Nipissing District :—
Secretary-Treasurer :—1 Applebe, 100 00 ; 2 Badgerow, 100.00 ; 1 Blezard, 100.00 ;
2 Blezard, 100.00 ; 1 Bonfield, 100.00 ; 2 Bonfield, 100 00 ; 4 Bonfield, 100 00 ;
1 "A" Bonfield, 50.00 ; 1 "B" Bonfield, 50.00 ; 1 Caldwell, 100.00 ; 2 Caldwell, 100 00 ;
3 Caldwell, 90.00 ; 1 Calvin, 100.00 ; 2 Calvin, 100.00 ; 3 Calvin, 100.00 ; 4 Calvin, 100.00 ;
1 Cameron, 100.00 ; 1 Chisholm, 100.00 ; 2 Chisholm, 150.00 ; 3 Chisholm, 50.00 ;
4 Chisholm, 50.00 ; 5 Chisholm, 100.00 ; 1 Dryden, 100.00 ; 1 Dunnett, 100 00 ;
3 Dunnett, 100.00 ; 4 Dunnett, 100.00 ; 1 Dunnett and Rutter, 50.00 ; 1 Ferris, 100.00 ;
3 Ferris, 150.00 ; 4 Ferris, 150.00 ; 1 Field, 40.00 ; 1 Hager, 100.00 ; 2 Hugel, 100.00 ;
1 Jennings, 60.00 ; 1 Kirkpatrick, 100 00 ; 2 Kirkpatrick, 100.00 ; 3 Kirkpatrick, 100.00 ;
4 Kirkpatrick, 100.00 ; 1 Lyell, 100 00 ; 2 Lyell, 100.00 ; 1 Lyell and Murchison, 50.00 ;
1 Martland, 50.00 ; 3 McKim, 100.00 ; 4 McKim, 100.00 ; 1 Mattawan, 100.00 ;
2 Mattawan, 100 00 ; 1 McCraney, 50 00 ; 1 Papineau, 50.00 ; 2 Papineau, 100.00 ;
2 "A" Papineau, 50 00; 2 "B" Papineau, 50.00; 2 Springer, 150.00; 3 Springer, 105.00 ;
4 Springer, 80 00 ; 2 Widdifield, 100.00 ; 3 Widdifield, 50.00 ..... 5,075 00

Board R.C S.S Trustees :
1 "A" Bonfield, 50.00 ; 1 "B" Bonfield, 50.00 ; 2 Bonfield, 50 00 ;
1 Chisholm & Boulter, 50.00 : 2 Chisholm & Boulter, 50 00 ; 1 Dunnett & Rutter, 50 00 ;
3 Ferris, 50 00 ; 4 Ferris, 50 00 ; 1 Papineau, 50.00 ; 2 "A" Papineau, 50.00 ;
2 "B" Papineau, 50.00 ; 2 Springer, 50.00 ; 3 Springer, 50.00 ;
2 Widdifield, 100.00 ..... 750 00

Parry Sound District :
Secretary Treasurer :—1 Armour, 100.00 ; 3 Armour, 100 00 ; 4 Armour, 100 00 ;
5 Armour, 50 00 ; 6 Armour, 100.00 ; 2 Bethune, 100 00 ; 3 Bethune, 100.00 ;
1 Carling, 100 00 ; 2 Carling, 100.00 ; 3 Carling, 100.00 , 4 Carling, 100 00 ;
8 Carling, 50,00 ; 1 Chapman, 100.00 ; 2 Chapman, 100 00 ; 3 Chapman, 100 00 ;
1 Christie, 100,00 : 2 Christie, 100.00 ; 3 Christie, 100.00 ; 1 Croft, 100.00 ;
2 Croft, 100.00 ; 3 Croft, 60.00 ; 1 Ferguson, 100 00 ; 1 Ferrie, 100.00 ;
2 Foley, 100 00 ; 3 Foley, 100.00 ; 4 Foley, 100.00 : 1 Gurd, 100 00 ;
2 Gurd, 100.00 ; 3 Gurd, 100 00 ; 3 N. Himsworth, 100.00 ; 4 N. Himsworth, 100.00 ;
1 S. Himsworth, 100.00 ; 2 S. Himsworth, 100 00 ; 3 S. Himsworth, 100 00 ;
5 S. Himsworth, 100 00 . 6 S. Himsworth, 100.00 ; 8 S. Himsworth, 100.00 ;
9 S. Himsworth, 100 00 ; 1 Hagerman, 100 00; 2 Hagerman, 100.00; 3 Hagerman, 100.00;
4 Hagerman, 100,00 ; 5 Hagerman, 75 00 ; 1 Joly 100.00 ; 1 Laurier, 50.00 ;
2 Laurier, 100.00 ; 3 Laurier, 100.00 ; 1 Lount, 100.00 ; 2 Lount, 100.00 ;
1 Machar, 100.00 ; 2 Machar, 100 00 ; 3 Machar, 100.00 ; 4 Machar, 100.00 ;
5 Machar, 100,00 ; 6 Machar, 100 00 ; 7 Machar, 100.00 ; 1 Mills, 100 00 ;
1 Monteith, 60.00 ; 2 Monteith, 100.00 ; 3 Monteith, 50.00 ; 4 Monteith, 50.00 ;

EDUCATION.—*Continued.*

DISTRICT SCHOOLS.—*Continued.*

1 Mowat, 100.00; 1 McKenzie, 100.00; 2 McDougall, 100 00; 3 McDougall, 100 00;
4 McDougall, 100 00; 5 McDougall, 100.00; 6 McDougall, 100.00;
1 McKellar, 100.00; 3 McKellar, 100 00; 4 McKellar, 100.00; 5 McKellar, 100 00;
6 McKellar, 100 00; 1 McMurrich, 100 00; 2 McMurrich, 100.00;
3 McMurrich, 100.00; 4 McMurrich, 100.00; 5 McMurrich, 100 00;
1 Nipissing, 100 00; 2 Nipissing, 100.00; 3 Nipissing, 100 00; 5 Nipissing, 100.00;
1 Perry, 100 00; 2 Perry, 100 00; 3 Perry, 100.00; 4 Perry, 100.00;
5 Perry, 100.00; 6 Perry, 100.00; 7 Perry, 100.00; 8 Perry, 100.00;
9 Perry, 100.00; 1 Proudfoot, 100 00; 1 Patterson, 100.00; 2 Pringle, 100.00;
1 Ryerson, 100.00; 2 Ryerson, 100.00; 3 Ryerson, 100 00; 4 Ryerson, 100.00;
5 Ryerson, 100 00; 1 Strong, 100 00; 2 Strong, 100.00; 3 Strong, 100.00;
5 Strong, 100.00; 6 Strong, 100 00; 1 Spence, 100.00; 2 Spence, 100.00;
4 Spence, 60.00; 5 Spence, 60.00; 1 Wallbridge, 100 00; 2 Wallbridge, 100.00;
1 Wilson, 100.00 ..... 10,665.00

Rainy River District:
Secretary Treasurer:—12 Attwood and Curran, 100.00; 1 Aubery and Eton, 100.00;
1 Aylsworth, 100.00; 1 Barwick, 70.00; 1 Burriss, 100.00; 1 Burriss (arrears 1900) 40.00;
1 Carpenter, 100 00; 2 Carpenter and Dobie, 100 00; 2 Carpenter, 50.00;
2 Crozier, 100.00; 6 Dilke, 100 00; 1 Devlin, 100.00; 2 Devlin, 100.00;
1 Dinorwick, 100 00; 1 Gold Rock, 80.00; 1 Keewatin, 100.00; 5 Lash, 100.00;
10 Lash, 100.00; 7 Morley, 50 00; 8 Morley and Dilke, 100.00; 1 McIrwin, 100.00;
1 Shenstone and Tait, 100.00; 1 Van Horne, 100.00; 1 Wainwright, 100.00;
1 Wabigoon, 100.00; 1 Woodyatt, 100.00; 1 Worthington, 100.00 ..... 2,490 00

Thunder Bay District:—
Secretary-Treasurer:—1 Gillies, 50.00; 1 Missinabie, 100.00; 1 Nepigon, 100.00;
1 Oliver, 100 00; 2 Oliver, 100.00; 3 Oliver, 100.00; 1 Papoonge, 100.00;
1 Ross Port, 100.00; 1 Savanne, 100 00; 1 Schreiber, 100.00; 1 White River, 100 00..... 1,050 00

Temiscaming District:—
1 Bucke, 100 00; 1 Dymond, 100.00; 2 Dymond and Hudson, 100.00; 1 Harris, 100.00;
1 Harley, 100.00; 1 Kearns, 100..... 600 00

James' Bay:—
The Royal Trust Co. for Moose Fort School 150 00
W. McMaster, postage stamps 25 00

KINDERGARTEN SCHOOLS ($3,060.15).

Trustees Public School, City of—
Brantford, 94.25; Chatham, 64.35; Guelph, 33.80; Hamilton, 364 65; Kingston, 67.60;
London, 215 80; Ottawa, 246.35; Stratford, 62.40; Toronto, 1,331.85 ..... 2,481 05

Trustees P. S., Town of:—
Aylmer, 30.55; Berlin, 135.20; Cobourg, 18.85; Galt, 29 90; Hespeler, 37.70;
Ingersoll, 25 35; Niagara Falls, 14.30; Owen Sound, 31.85; Preston, 32.50;
Peterboro', 37 70; Simcoe, 25.35; Toronto Junction, 42.25; Tilsonburg, 19.50;
Waterloo, 26 65 ..... 507 65

Trustees P. S., Village of—
Ashburnham, 26.65; Campbellford, 7.80 ..... 34 45

Educational Publishing Co.: advertising, 10.00; Warwick Bros. & Rutter: printing, 2.00... 12 00

W. McMaster: postage stamps..... 25 00

NIGHT SCHOOLS ($239.00).

Secretary Public School Board of Trustees, City of—
Brantford, 8.00; St. Catharines, 14 00; Toronto, 162.00; Sault Ste. Marie, 10 00 ..... 194 00

Advertising: Educational Publishing Co., 20.00; *Can. Educational Monthly*, 5.00;
Queen's Quarterly Pub. Co., 5.00; *Varsity*, 5.00 ..... 35 00

W. McMaster: postage stamps 10 00

CONTINUATION CLASSES ($19,393.03).

Treasurer, County of:—
Brant, 240.00; Bruce, 270.00; Carleton, 275.00; Dufferin, 105.00; Essex, 330.00;
Elgin, 735.00; Frontenac, 45.00; Grey, 275 00; Halton, 25.00; Haldimand, 185.00;
Haliburton, 15.00; Huron, 665 00; Hastings, 275.00; Kent, 1,070.00;
Leeds and Grenville, 200.00; Lanark, 145 00; Lennox and Addington, 90.00;
Lincoln, 45.00; Lambton, 245.00; Middlesex, 455.00;
Northumberland and Durham, 340.00; Norfolk, 195.00; Ontario, 355.00; Oxford, 290.00;
Prescott and Russell, 125.00; Prince Edward, 50.00; Peel, 70.00; Peterboro', 25.00;
Perth, 275.00; Renfrew, 140 00; Simcoe, 930.00; Stormont, Dundas & Glengarry, 490.00;
Victoria, 85.00; Welland, 180.00; Waterloo, 55 00; Wellington, 275.00;
Wentworth, 220.00; York, 240.00 ..... 10,030 00

Board Public School Trustees, Town of:—
Alliston, 200.00; Amherstburg, 100.00; Blenheim, 100.00; Bothwell, 100.00;
Bracebridge, 400.00; Copper Cliff, 50 00; Durham, 200.00; Dresden, 100.00;
Gore Bay, 400 00; Huntsville, 200.00; Kingsville, 50.00; Little Current, 30.00;
Midland, 100.00; Milton, 200.00; North Toronto, 25.00; Penetanguishene, 15.00;
Palmerston, 100.00; Parry Sound, 400.00; Stayner, 200.00; Sudbury, 50.00;
Thornbury, 15.00; Thessalon, 50.00; Wallaceburg, 200.00 ..... 3,285 0

EDUCATION.—*Continued.*

CONTINUATION CLASSES.—*Continued.*

Board Public School Trustees, Village of :—
Acton, 50.00 ; Ayr, 50.00 ; Alvinst n, 100.00 ; Beeton, 100.00 ; Burk's Falls, 400.00 ; Burlington, 25.00 ; Beaverton, 50.00 ; Bath, 100.00 ; Bolton, 100.00 ; Bobcaygeon, 50 00 ; Bridgeburg, 50.00 ; Brussels, 100.00 ; Blyth, 25 00 ; Creemore, 100.00 ; Cannington, 50.00 ; Cardinal, 25 00 ; Chesterville, 100 00 ; Chapleau, 50.00 ; Cobden, 25.00 ; Clifford, 50 00 ; Chesley, 300.00 ; Dundalk, 25 00 ; Delhi, 25 00 ; Drayton, 100.00 ; Elmira, 25 00 ; Exeter, 200.00 ; Eganville, 100 00 ; East Toronto, 25.00 ; Embro, 50.00 ; Erin, 100.00 ; Fenelon Falls, 25.00 ; Grand Valley, 100.00 ; Hanover, 100.00 ; Hastings, 25 00 ; Havelock, 25.00 ; Hespeler, 15.00 ; Hensall, 50.00 ; Lakefield, 50.00 ; Lanark, 100.00 ; Lucknow, 50 00 ; Lancaster, 15.00 ; Millbrook, 100 00 ; Marddale, 50 00 ; Maxville, 25.00 ; Merrickville, 100.00 ; Milverton, 50.00 ; Newboro', 25 00 ; Norwich, 100.00 ; Oil Springs, 100 00 ; Paisley, 200.00 ; Port Colborne, 50 00 ; Port Stanley, 15.00 ; Richmond, 50 00 ; Rockland, 15.00 ; Shelburne, 200.00 ; Stouffville, 15.00 ; Springfield, 50.00 ; Sundridge, 30 00 ; Teeswater, 100 00 ; Tara, 15.00 ; Tiverton, 25 00 ; Thamesville, 100 00 ; Tweed, 25.00 ; Tottenham, 200.00 ; Tilbury, 25 00 ; Woodbridge, 100.00 ; Winchester, 100 00 ; Woodville, 25.00 ; Wellington, 25.00 ; Wroxeter, 25.00 ; Wingham, 100.00 ; Wyoming, 25.00 ..... 5,170 00

Board Public School Trustees :—
2 Assiginack, 50.00 ; 8 Chaffey, 30 00 ; 1 Chapman, 30.00 ; 1 Humphrey, 30.00 ; 4 N. Himsworth, 50.00 ; 8 S. Himsworth, 30 00 ; 2 Machar, 50.00 ; 1 Plummer, additional, 50 00 ; 2 Stephenson, 50.00 ; 3 Wood, 30.00 ..... 400 00

Board R. C. S. S. Trustees :—
Town of Amherstburg, 100.00 ; Mattawa, 50 00 ..... 150 00
Village of Eganville, 100.00 ; Hastings, 30 00 ..... 130 00
School Section :—10 Adjala, 15.00 ; 4 N. Crosby, 50.00 ; 3 Mara, 25 00 ; 5, Raleigh, 15.00 ; 6 Raleigh, 15 00 ..... 120 00
G. L Rutherford Services as telephone boy 5 00
Warwick Bros & Rutter: Printing and binding 19 48
L. K. Cameron: Paper, 8.55 ; Wm. McMaster, postage stamps, 75.00 ..... 83 55

COUNTY MODEL SCHOOLS ($9,551.65).

Public School Board Trustees :—
Athens, 150 00; Barrie, 150.00; Beamsville, 150.00; Berlin, 150.00; Bracebridge, 150.00 ; Bradford, 150 00 ; Brampton, 150.00 ; Caledonia, 150.00 ; Chatham, 150 00 ; Clinton, 150 00; Cornwall, 150.00; Durham, 150 00; Elora, 150.00 ; Forest, 150 00 ; Galt, 150 00 ; Gananoque, 150 00 ; Goderich, 150 00 ; Hamilton, 150 00 ; Ingersoll, 150 00 ; Kincardine, 150.00 Kingston, 150.00 ; Lindsay, 150 00 ; London, 150.00 ; Madoc, 150 00 ; Meaford, 150 00 ; Milton, 150.00 ; Mitchell, 150.00 ; Mt. Forest, 150.00 ; Minden, 150.00 ; Morrisburg, 150 00 ; Napanee, 150.00 ; Newmarket, 150 00 ; Norwood, 150 00 ; Orangeville, 150 00 ; Owen Sound, 150 00 ; Parry Sound, 150 00 ; Perth, 150 00 ; Picton, 150 00 ; Port Hope, 150.00 ; Port Perry, 150 00 ; Prescott, 150.00 ; Renfrew, 150 00 ; St. Thomas, 150.00; Sarnia, 150 00; Simcoe, 150.00; Stratford, 150.00; Strathroy, 150 00 ; Toronto, 150.00; Toronto Junction, 150.00; Vankleek Hill, 150.00; Walkerton, 150 00 ; Whitby, 150 00 ; Windsor, 150 00 ; Woodstock, 150.00 ..... 8,100 00
Special Grants :—Bracebridge, 150 00 ; Parry Sound, 150 00 ..... 300 00
French-English Model School, 6 Plantaganet N 150 00
Books :—Copp, Clark Co, 312 50 ; Methodist Book & Publishing House, 256.30 ; G. N. Morang & Co, 309 00 ..... 877 80
Warwick, Bros & Rutter: Printing, etc, 2.20 ; W. McMaster: Postage, 65.00 ..... 67 20
G. L Rutherford: Services as telephone boy, 5.00 ; Canadian Express Co: Charges, 10.50 ..... 15 50
Dominion Express Co: Charges, 10 95 ; *Varsity*: Advertising, 5 00 ..... 15 95
Educational Publishing Co: Advertising, 20.00 ; *Queen's Quarterly*: Advertising, 5 00 ..... 25 00
Riordon Paper Mills: Paper 20

FRENCH-ENGLISH TRAINING SCHOOL. ($800.00).

Trustees 6 Plantaganet N: Grant 800 00

TEACHERS' ASSOCIATIONS AND DISTRICT TRAINING SCHOOLS. ($2,757.75).

Treasurer Teachers' Association :—
Algoma, E, 25.00 ; Algoma, W, 25.00 ; Bruce, E, 25.00 ; Bruce, W, 25.00 ; Brant, 25.00 ; Carleton, 25 00 ; Dundas, 25.00 ; Dufferin, 25.00 ; Durham, 25.00 ; Elgin, 25 00 ; Essex, N, 25 00 ; Essex, S, 25 00 ; Frontenac, 25 00 ; Glengarry, 25 00 ; Grey, E, 25.00 ; Grey, S, 25.00 ; Grey, W, 25 00 ; Grenville, 25 00 ; Haltoo, 25 00 ; Huron, N, 25.00 ; Huron, W, 25 00 ; Haldimand, 25.00 ; Hastings, N, 25.00 ; Hastings, S, 25 00 ; Haliburton, 25 00 ; Kent, E, 25 00 ; Kent, W, 25 00 ; Lanark, 25.00 ; Lambton, W, 25.00 ; Lambton, E, 25.00 ; Leeds, E, 25.00 ; Leeds, W, 25.00 ; Lennox & Addington, 25 00 ; Lincoln, 25.00 ; Middlesex, E, 25.00 ; Middlesex, W, 25.00 ; Muskoka, 25 00 ; Nipissing, 25.00 ; Northumberland, 25.00 ; Norfolk, 25 00 ; Ontario, N, 25 00 ; Ontario, S, 25.00 ; Oxford, 25.00 ; Parry Sound, E, 25.00 ; Parry Sound, W, 25 00 ; Peterboro, 25.00 ; Perth, 25.00 ; Peel, 25.00 ; Prescott & R, 50.00 ; Prince Edward, 25.00 ; Rainy River, 25.00 ; Renfrew, 25.00 ; Stormont, 25.00 ; Simcoe, N, 25.00 ; Simcoe, S & W, 25.00 ;

EDUCATION.—*Continued.*

TEACHERS' ASSOCIATIONS AND DISTRICT TRAINING SCHOOLS.—*Continued.*

Simcoe, E, 25.00; Victoria, E, 25.00; Victoria, W, 25.00; Waterloo, 25.00; Wentworth, 25 00; Wellington, N, 25.00; Wellington, S, 25 00; Welland, 25 00; York, N, 25.00; York, S, 25.00; Temiscaming District, 25.00	1,650 00
City of :— Guelph, 25 00; Hamilton, 25.00; Kingston, 25.00; London, 25.00; Ottawa, 50 00; St Thomas, 25.00; St. Catharines, 25.00; Toronto, 25.00; Windsor and Walkerville, 25.00	250 00
Ontario Educational Association: Legislative Grant	600 00
Board R. C. S. S., London: Grant towards Teachers' Convention	25 00
Board R. C. S. S., Hamilton: do do do	25 00
Treas. Teachers' Institute, Nipissing: Grant toward a Director to conduct meetings	15 00
Wm. Briggs: Printing and binding 1,000 copies Minister's speech at opening of Teachers' Association	88 80
F. Tracy: Travelling expenses re Teachers' Institute, Oxford	5 00
G. L. Rutherford: Services as telephone boy, 5.00; Warwick Bros & Rutter, printing, 1.80	6 80
L. K. Cameron: Paper, 2.15; Wm. McMaster: Postage stamps, 75.00	77 15
Canadian Educational Monthly: Advertising, 5.00; Educational Pub. Co, Advertising, 10.00	15 00

INSPECTION OF NORMAL, MODEL, PUBLIC AND SEPARATE SCHOOLS. ($60,292.04).

J. F. White.....Twelve months' salary as Inspector Separate Schools	2,000 00
do .....Travelling expenses	300 00
Wm. Prendergast.....Twelve months' salary as Inspector Separate Schools	1,700 00
do .....Travelling expenses	381 20
Michael O'Brien .....Twelve months' salary as Inspector Separate Schools	1,700 00
do .....Travelling expenses	569 95
Geo. Grant.....Twelve months' salary as Inspector Public Schools in Parry Sound, etc.	1,500 00
do .....Travelling expenses	312 00
D. McCaig.....Twelve months' salary as Inspector Public Schools in Algoma	1,500 00
do .....Travelling expenses	378 61
J. J. Tilley.....Twelve months' salary as Inspector Model Schools	1,850 00
do .....Travelling expenses	200 00
do .....do balance 1901	227 35
T. Rochon.....Twelve months' salary as Inspector Bi-Lingual Schools	1,500 00
do .....Travelling expenses	287 45
W. Houston .....Twelve months' salary as Inspector Schools in Manitoulin, etc	1,640 00
A. H. Leake.....Three months' salary as Inspector Technical Schools	375 00
Public School Inspectors :— W. Atkin, 718.75; J. H Ball, 586.25; C. A. Barnes, 615.00; A. Brown, 545.00; H. H. Burgess, 536.25; J. C. Brown, 585.00; F. Burrows, 682 50; W. Carlyle, 812.50; A. Campbell, 156.25; W. J. Chisholm, 455.00; N. W. Campbell, 640 00; W. S. Clendenning, 625.00; D. Chenay, 233.75; D. Clapp, 545.00; Rev. W. H. G. Colles, 456.25; R. H. Cowley, 681.25; T. A. Craig, 430 00; J. J. Craig, 425.00; A. B. Davidson, 517.50; I. Day, 1,056.25; J. S. Deacon, 452.50; A. Embury, 497.50; D. Fotheringham, 603.75; A. Grier, 323 75; N. Gordon, 585.00; W. W. Ireland, 440.00; W. Irwin, 696 25; Jno. Johnston, 535.00; Wm. Johnston, 500 00; H. D. Johnston, 550.00; R. Kinney, M.D., 450 00; J. H. Knight, 361.25; M. J. Kelly, M.D, 300 00; J. McBrien, 420.00; D. McDiarmid, 431.25; A. McNaughton, 501.25; Rev. Thos. McKee, 635.00; D. A. Maxwell, 557 50; Wm. Mackintosh, 622.50; C. Moses, 510.00; J. C. Morgan, 692.50; F. L. Michell, 925.00; D. D. Moshier, 605.00; A. Odell, 700.00; R. Park, 495.00; Thos. Pearce, 993.75; S. Phillips, 1,282.50; G. D. Platt, 455.00; Hy. Reazin, 1,020.00; D. Robb, 623.75; R. G. Scott, 935.00; J. H. Smith, 538.75; T. W. Starding, 100.00; W. J. Summerby, 603.75; Wm. Spankie, M.D., 770.00; P. J. Thompson, 572.50; W. E. Tilley, 715.00; J. E. Tom, 667.50; J. Waugh, 332.50; J. J. Wadsworth, 752 50	35,055 00
Treasurer, Board Public School Trustees City of:— Belleville, 115 00; Brantford, 240.00; Brockville, 120.00; Chatham, 132.50; Guelph, 162 50; Hamilton, 815 00; Kingston, 260.00; London, 635.00; Ottawa, 455 00; St. Catharines, 125 00; St. Thomas, 200.00; Stratford, 140.00; Toronto, 2, 855.00; Toronto (arrears 1901). 845.00; Windsor, 225.00; Woodstock, 150.00	7,475 00
Treasurer, Board Public School Trustees Town of:— Niagara Falls, 50.00; Peterboro, 160.00; Prescott, 35.00; St. Mary's, 45.00; Trenton, 45.00; Toronto Junction, 125.00; Walkerville, 25.00; Woodstock (1901) 75.00	560 00
Wm. Mackintosh: Special allowance inspecting in remote townships of N. Hastings, 1901	75 00
W. S. Clendenning: " " Indian Peninsula, 1901	25 00
Rev. D. Teefy: Special report of Separate School matters	100 00
Warick Bros. & Rutter: Printing and binding, 218.52; Riordon Paper Mills: Paper, 1.48	220 00
L, K. Cameron: Paper, 23.89; stationery, 243.16; W. McMaster: Postage stamps, 40 00	307 05
Copp Clark Co: Books, 3.33; Brown Bros: Memo books, 6.00	9 33
H. F. Taylor: Telephone boy, 2.50; Can Express Co: Charges, .30	2 80
Advertising:—Educational Publishing Co, 20.00; *Varsity*, 5.00; Torontonensis, 10.00; Mail Printing Co, 3.30; Globe Printing Co, 3.00	41 30

EDUCATION.—*Continued.*

DEPARTMENTAL EXAMINATIONS ($37,046.33).

W. Pakenham	Two months'	salary as	Registrar		292 00
W. H. Jenkins	Ten do	do			1,458 00
Bruce Leadbetter	Twelve do	Printer			700 00
F. F. Evans	do do	Assistant Printer			750 00
W. W. Jeffers	do do	Clerk			900 00
S. A. May	do do	do			800 00
R. H. Macoomb	Ten do	Stenographer			418 00
F. N. Nudel	Twelve do	Secretary Board of Examiners			500 00

Sundry persons: Services as examiner: Junior and Senior Leaving Examinations:

B. Aitcheson, 84.00 ; A. E. Attwood, 80.50 ; A. A. Armour, 84.00 ; J. Burchill, 84.00 ; H. H. Burgess, 53.81 ; W. Bryce, 84.00 ; E. M. Brunnell, 80.94 ; H. W. Brown, 89.25 ; P. W. Brown, 85.75 ; J. H. Cameron, 84 00 ; J. S. Carstairs, 84.88 ; J. W. Charlesworth, 80.50 ; A. E. Caverhill, 81.38 ; J. J. Craig, 84.00 ; D. Currie, 114 25 ; R. A. Croskery, 44.63 ; G. A. Carefoot, 84.88 ; W. J. Dowkes 83.13 ; M. Davidson, 84.00 Wm. Donaldson, 84.88 ; G. K. Dingle, 84.00 ; D. M. Eagle, 85.31 ; P. Edgar, 80 37 ; E. S. Fitzgerald, 89.25 ; F. H. Frost, 97.13 ; W. F. Findlay. 84.88 ; Rev. G. Grant, 84 00 ; W. H. Gundy, 76.13 ; B. D. Grant, 84.88 ; W. B. Harvey, 80.06 ; C. Henrietta, 94.06 ; A. Hay, 97.13 ; E. S Howard, 97.13 R. O. Jolliffe, 73.50 ; R. Kinney, 80.06 ; E.E.C.Kilmer, 45 50 ; Jas. Keillor, 97.13 ; T. E. Langford, 83.13 ; J. T. Luton, 89.25 ; J. B. McDougall, 84 00 ; K. McLennan, 80.06 ; A. C. McPhail, 96.25 ; A. McVicar, 89.25 ; J. E. McDonald, 84 00 ; W. S. W. McLay. 85.50 ; M. MacKenzie, 67.50 ; J. H. Markle, 80 06 ; J. W. Milne. 85.75 ; K. E. Moir, 73.50 ; T. Murray, 93.19 ; J. J. Morgan, 97.13 ; M. G. Miller, 70.88 ; F. T. Norris, 84.00 ; Wm. O'Connor, 96.69 ; S. Phillips, 80.50 ; G. D. Platt, 80.06 ; P. J. Pilkey, 89.25 ; R. B. Page, 94.94 ; J. Rice, 81 38 ; G. W. Rudlen, 96.25 ; E. J. Reid, 89.25 ; R Ross, 86.63 ; J. Shaw, 83.13 ; L. E Staples, 80.06 ; W. K. T. Smellie, 84.00 ; F. J. Sawers, 89.25 ;

G. Andrus, 81 38 ; T. D. Allingham, 85.75 ; Mary Annis, 89.25 ; J. R. Bulmer, 85 31 : J. C. Brown, 80 06 ; J. W. Brown, 84.00 ; Lyman Brown, 77.00 ; F. J. Birchard, 84.88 ; E. Bell, 70.88 ; A. Carruthers, 58.00 ; G. E. F. Colling, 97.13 ; J. Campbell, 80.06 ; A. M. Currie, 85.75 ; W. F. Chapman, 84.00 ; L. Caesar, 89.25 ; J. W. Carter, 81.38 ; W. R. Carr, 78.75 ; J. Davidson, 80.06 ; T. C. Doidge, 97,13 ; E. E. Deroche, 84 88 ; A. T. DeLury, 81.00 ; J. J. Evans, 85.75 ; J. W. Farhan, 84.00 ; J. M. Field, 94.06 ; J. W. Forbes, 97 13 ; H. J. Foik, 73 50 ; E. Giles, 80 06 ; A. D. Griffin, 93 19 ; W. L. Goodwin, 24.00 ; M. A. Higginson, 81.38 ; L. E. Herning, 80 94 ; N. E. Hinch, 84 88 ; G. M. Jones, 89.25 ; L. L. Jones, 89.25 ; L. R Keogh, 81.38 : W. S. Kirkland, 84.88 ; F. E. Kirkwood, 95.38 ; A. F. Lanan. 74 81 ; G. Lawler, 94.06 ; A. McIntosh, 83 13 ; M. McIntosh, 81.38 ; F.W.C. McCutcheon, 84.00 ; W. J. McLean, 89 25 ; W. A. McKim, 84.00 ; A. E. McLean, 89.25 ; J. MacGillivary, 98.00 ; J. Millar, 81.38 ; A. E. Manning, 84.88 ; J. Morgan, 84.00 ; A. N. Myer, 91.00 ; A Mowat, 89.25 ; F. W. Merchant, 65.00 ; W. W. Nichol, 78.75 ; A. Odell, 83 13 ; S. Pattinger, 80.06 ; W. Prendergast, 85 75 ; E G. Powell, 85 75 ; C. Rose, 83.13 ; G. D. Robertson, 85.75 ; P. J. Robinson, 89.25 ; W. E. Rand, 93.19 ; F. H. Roberts, 89 25 ; J. Suddaby, 77.88 ; M. A. Sorsoliel, 80 06 ; T. E. A. Stanley, 96.25 ; F. H. Scott, 84.88 ;

G. R. Anderson, 96.25 ; H. S. Albarus, 80.94 ; E. A. Allin, 89 25 ; C. Bridgman, 83.13 ; L. Barr, 84.00 ; A. W. Baines, 26 25 ; T. G. Bragg, 73 50 ; R. Boyes, 97.13 ; C. P. Bishop, 97 13 : N. Cleary, 89.25 ; J. Cameron, 78.75 ; J. W. Crewson, 66.50; J. D. Campbell, 85.75 ; N. R. Carmichael, 63.88 ; J. K. Colling, 73.50 ; A. H. Clayton, 89.25 ; D. A. Campbell, 84.88 ; I. Day, 80 06 ; H. J. Dawson, 77.88 ; W. P. Dandy, 84.88 ; W. A. Evans, 80 06 ; C. H. Edwards, 84.00 ; R. A. Farquharson, 89.25 ; E. C. Fleming, 89.25 ; J. Foster, 84.88 ; J. Fletcher, 151.00 ; R. M. Graham, 84.00 ; E. Gardiner, 89.25 ; E. W. Hinde, 84. 00 ; W. J. Hamilton, 85.75 ; A. W. Hendrick, 89.25 ; E. A. Hardy, 97.13 ; W. S. Jackson, 89.25 ; G. L. Johnston, 84.88 ; W. L. Kidd, 80 06 ; W. W. Knight, 85.75 ; A. L. Langford; 40.50 ; J. L. Leary, 85.75 ; C. McArthur, 83 13 ; J. S McEwan, 80 06 ; J. McRae, 85 75 ; R. D. McMurchy, 84.88 ; J. McCool, 84 00 ; E McManus, 97.13 ; D. McKay, 97.13 ; G. A. Miller, 80.06 ; M. A. Moir, 85.75 ; D. D. Moshier, 84 00 ; W. Mowbray, 90.56 ; R. N. Merrit, 97.13 ; J. D. Morrow, 84.00 ; J. Nugent, 81.38 ; M. O'Brien, 46.50 ; A. M. Overholt, 98.00 ; J. Panton, 80.06 ; W. H. Piersol, 84.88 ; Mrs. A. Pattee, 84.00 ; J. A. Rundle, 85 75 ; G. F. Rogers, 84.00 ; T. P. Riddell, 89.25 ; M. R. Reid, 84.88 ; M. B. Reynor, 96.25 ; J. Spence, 84.00 ; W. D. Spence, 84 00 ; R. Stoddart, 84 00 ; S. J. Stubbs, 93 63 ;

EDUCATION.—*Continued.*

DEPARTMENTAL EXAMINATIONS.—*Continued.*

F. A. Stuart, 84.88 ; L. H. Shepley, 78.31 ; A. Steele, 84.00 ;
H. Skinner, 68.25 ; L. W. Taylor, 85 75 ; H. J. Talbot, 85 31 ;
J. A. Taylor, 84.88 ; R. B. Thomson, 8 88 : P. M. Thompson, 84 88 ;
J. F. Thomson, 84.88 ; A. E. Tennant, 89.25 ; M J. Thompson, 84.00 ;
J. F. Van Every, 80.94 ; J. Waugh, 82.25 ; W. Ward, 84 88 ;
E. Ward, 84.00 ; R Wright, 85 75 ; R. O. White, 84.00 ;
W. Wilson, 81.38 ; J. F. White, 84.00 ; T. M. Wilson, 78.75 :
Robt. Whyte, 96.25 ; T. Wooster, 96 25 ; G. E. Will, 89 25 ;
M. L. Wright, 89 25 ; A. Weir, 89.25 ; N. L. Wilson, 83 78 ;
R. H. Walks, 84.00 ; R. Ramsey Wright, 24.00 ; G. M. Wrong, 61.50 ;
D. Young, 82.25 ; W. D Young, 84.00 ; A. H. Young, 112 00 ;
R. S. Simpson, 96.69 ; R. Stothers, 84.88 . ..... 19,552 44

Sundry persons travelling expenses as Examiner :—

B. Aitcheson, 3.00 ; G. Andrus, 5.70 ; A. E. Attwood, 13.10 ;
T. D. Allingham, 9.45 ; H. S. Albarus, 16.10 ; A. A. Armour, 15.85 ;
Mary Annis, 1.35 ; E. A Allin, 8.20 ; J. Burchill, 4 95 ;
C. Bridgman, 4.00 ; H. H. Burgess, 7.85 ; J. C Brown, 4.45 ;
L. Barr, 3.00 ; J. W. Brown, 6.15 ; A. W. Baines, 8.00 :
E. M. Brunnell, 4 25 ; Lyman Brown, 5.60 ; T. G. Bragg, 3.05 ;
H. W. Brown, 7 75 ; R. Boyes, 7 25 ; P. W Brown, 9 00 ;
C. P. Bishop, 13.10 ; J. H Cameron, 34.20 ; N. Cleary, 12.50 ;
G. E. F. Collings, 5 85 ; J. Cameron 6 70 ; J. W. Charlesworth, 2.50 ;
J. Campbell, 8.20 ; J. W. Crewson, 14 10 ; A. E. Caverhill, 3.60 ;
A. M. Currie, 10 75 ; J. D. Campbell, 9.25 ; J. J Craig, 4.20 ;
N. R. Carmichael, 9.00 ; L. Caesar, 3.60 ; J. R. Colling, 5.85 ;
R. A. Croskery, 13.60 ; J. W. Carter, 4.20 . A. H. Clayton, 7 10 ;
G. A. Carefoot, 2 80 ; D. A. Campbell, 19.50 ; W. I. Dowkes, 4 20 ;
J. Davidson, 14 00 ; I. Day, 5.45 ; M. Davidson, 3.00 ;
T. C. Doidge, 6.00 ; H. J Dawson, 9 50 ; Wm. Donaldson, 9.70 ;
E E. Deroche, 8 50. W. P. Dandy, 19 40 ; G K. Dingle, 7 35 ;
W. A. Evans, 6.05 ; D. M. Eagle, 14 20 ; C. H. Edwards, 11.25 ;
J. W. Farhan, 1 75 ; R. A. Farquharson, 1.30 ; E. S. Fitzgerald, 18.60 ;
J. M. Field, 7.75 ; E. C. Fleming, 2.90 ; F. H. Frost, 2.80 ;
J. W. Forbes, 55 ; J. Foster, 4.95 ; H. J. Foik, 10 00 ;
Rev. G. Grant, 5 30 ; E. Giles, 12 70 ; R. M. Graham, 9.20 ;
A. D. Griffin, 4 85 ; E. Gardiner, 7 25 ; B. D. Grant, 7 75 ;
W. B. Harvey, 11.30 ; M. A. Higginson, 16 35 ; W. J. Hamilton, 7.10 ;
L. E Horning, 4 95 ; A. W. Hendrick, 10.80 ; A. Hay, 5.00 ;
N. E. Hinch, 13 80 ; E. A. Hardy, 3 95 ; E. S. Howard, 7.35 ;
G. M. Jones, 3 65 ; R. O. Jolliffe, 6 60 ; L. L. Jones, 5 70 ;
G. L Johnston, 2.00 ; R. Kinney, 13 20 ; L. R. Keogh, 14.05 ;
W. L. Kidd, 4 85 ; E E C. Kilmer, 6 15 ; W. S. Kirkland, 18.70 ;
W. W. Knight, 6 85 ; Jas. Keillor, 10.00 ; F. E. Kirkwood, 6 80 ;
A. L. Langford, 23.25 ; T. E. Langford, 5.45 ; A. F. Lannon, 4 45 ;
J. T. Luton, 8 25 ; C. McArthur, 3.15 ; J. B. McDougall, 16.00 ;
J. S. McEwan, 14.10 ; K. McLennan, 7.75 ; J. McRae, 7 25 ;
A. C. McPhail, 12.35 ; F.W.C McCutcheon, 5 70; R D. McMurchy, 6.25 ;
A. McVicar, 14 10 ; W. J. McLean, 22.90 ; J. McCool, 6.40 ;
W. A. McKim, 10 00 ; E. McManus, 10.00 ; W. S. W. McLay, 23.10 ;
A. E. McLean, 19 00 ; D. MacKay, 14 00 ; J Macgillivary, 18.50 ;
G. A. Miller, 10.85 ; M. A. Moir, 4.25 ; A. E. Manning, 2.25 ;
D. D. Moshier, 8.70 ; K. E. Moir, 4.50 ; J. Morgan, 11 50 ;
W. Mobray, 9 85 ; T. Murray, 6.90 ; A. N. Myer, 3.30 ;
R. N. Merritt, 1.20 ; J. J. Morgan, 5.35 ; A. Mowat, 12 70 ;
J. D. Morrow, 7 20 ; M. G. Millar, 15.10 ; F W. Merchant, 25.10 ;
J. Nugent, 14.60 ; F. T. Norris, 18.40 ; W. W. Nichol, 5.45 ;
A. Odell, 4.55 ; A. M. Overholt, 2.00 ; S. Phillips, 6 25 ;
S. Pattinger, 9 70 ; J. Panton, 2.45 ; G. D. Platt, 8.85 ;
P. J. Pilkey, 32.90 ; E. G. Powell, 5.55 ; Mrs. A. Pattee, 7.20 ;
C. Rose, 13.60 ; J. Rice, 1 50 ; G. D. Robertson, 5.70 ;
G. F. Rogers, 6 55 ; G. W. Rudler. 14 20 ; T. P. Riddell, 7.00 ;
E. J. Reid, 4.60 ; W. E. Rand, 6 95 ; M. R. Reid, 8.50 ;
R Ross, 14 35 ; F. H. Roberts, 52.00 ; M. B. Reynar, 9.80 ;
J. Shaw, 6 50 ; J. Suddaby, 3.30 ; L E. Staples, 9 50 ;
M. A. Sorsoliel, 4.45 ; W. D. Spence, 5.75 ; W. K. T. Smellie, 8.05 ;
T. E. A. Stanley, 14.40 ; R. Stoddart, 6 55 ; F. J. Sawers, 3.50 ;
S. J. Stubbs, 14.00 ; F. A. Stuart, 7.25 ; R. S. Simpson, 7.75 ;
R. Stothers, 18.10 ; L. H. Shepley, 12.55 ; A. Steele, 3.50 ;
K. Skinner, 3 50 ; L. W. Taylor, 4.50 ; H. J. Talbot, 3.00 ;
J. A. Taylor, 8.70 ; P. M Thompson, 3 00 ; J. F. Thompson, 6 75 ;
A. E. Tennant, 7.25 ; M. J. Thompson, 13 60 ; J. F Van Every, 8.50 ;
J. Waugh, 2 20 ; W. Ward, 9.60 : E. Ward, 4.75 ;
R. Wright, 3 80 ; R. O White, 15.50 ; W. Wilson, .10 ;
Thos. M. Wilson, 23.00 ; R. Whyte, 8.05 ; G. E. Will, 2.50 ;
A. Weir, 6 00 ; N. L. Wilson, 8.90 ; R. H. Walks, 2 70 ;
D. Young, 3.10 ..... 1,651 55

EDUCATION.—*Continued.*

DEPARTMENTAL EXAMINATIONS.—*Continued.*

Services reading appeals and revising results :—Junior and Senior Leaving Examinations.

W. S. Milner, 44.63 ;	W. H. Ballard, 23.63 ;	W. S. W. McLay, 66.50 ;	
M. O'Brien, 42 00 :	W. G. Wrong, 52 50 ;	F. W. Merchant, 57.75 :	
A. H. Young, 24.50 ;	J. H. Cameron, 47.25 ;	J. McGillivray, 13.13 ;	
W. L. Goodwin, 23.63 ;	P. Edgar, 74.55 ;	M. McKenzie. 56 87 ;	
A. T. DeLury, 49.00 ;	A. Carruthers, 22.75 ;	J. Fletcher. 65.63 ;	
R. Ramsay Wright, 7.00			671 32

Clerical assistance :—

W. J. Anderson, 59.00 ;	F. L. Barber, 108 50 ;	S. P. Briggs, 105.00 ;	
C. W. Bishop, 54,00 ;	J. H. Beer, 166 00 ;	M. H. Embree, 74.00 ;	
R. Gilpin, 10.00 ;	H. C. Griffith, 31.00 ;	D. R. Gray, 54 00 ;	
L. J. Hayes, 68.00 ;	H. L. Hoyles, 65.50 ;	W. G. James, 56 00 ;	
W. F. Kingston, 65.50 ;	A. Ker, 12.00 ;	L. G Lorriman, 65 00 :	
T. Mannell, 10.00 ;	H. G Martyn, 159 00 ;	R. W. MacIntyre, 29.00 ;	
H. Merrit, 65.00 ;	John Phillips, 96.00 ;	J. E Reid, 154.00 ;	
G. A. Robertson, 62.00 ;	W. H. Rutherford, 35.00 ;	R. G. Snyder, 84.00 :	
T. B. Stevenson, 78 00 ;	J. A. Soule, 54.00 ;	A. C. Snivley, 58.00 ;	
T. Williamson, 10.00			1,887 50

Travelling expenses :—

W. J. Anderson, 7.80 ;	F. L. Barber, 6.80 ;	C. W. Bishop, 8 05 ;	
J. H. Beer, 8 05 ;	H. C. Griffith, 4 70 ;	W. G. James, 8 95 ;	
W. F. Kingston, 8.20 ;	L. G. Lorriman, 5.50 ;	H. G Martyn, 3.80 :	
H. Merritt, 4 20 ;	John Philips, 5.70 ;	J. E. Reid, 1.40 ;	
G. A. Robertson, 8 20 ;	W. H. Rutherford, 2.50 ;	R. G. Snyder, 2.00 :	
T. B. Stevenson, 7.00 ;	John A. Soule, 6.30		99 15

Normal College Examinations :—

W. H. Ballard: Services presiding, 36 00 : J. H. Smith: Services as assistant, 32.00
G. W. Ballard: Services as attendant, 12.00 ;

Setting papers and reading answers :—

J. H. Brethour, 34.65 ;	A. W. Burt, 35.10 ;	E. Coombs, 35.10 ;	
W. C. Ferguson, 17.40 ;	R. Gray, 35 10 ;	J. A. Houston, 16.80 ;	
E. L. Hill, 51.00 ;	A. E. Jewett, 22.35 ;	J. Jeffries, 18.15 :	
C. J. Logan, 21 30 ;	H. S. McKellar, 24 60 ;	G. H. Reed, 35.10 ;	
A. Stevenson, 35 10 ;	S. Silcox, 35.10 ;		

Reading appeals :—

P. S. Campbell, 5.00 ;	W. J. Alexander, 5.00 ;	A. C. McKay, 5.00 ;	
S. Silcox, 5 00 ;	J. Waugh, 15.00 ;	A. H. Young, 5.00 :	

Revising committee :—

E. Coombs, 5.00 ;	R. Gray, 5 00 ;	G. H. Reed. 5.00 ;	

Travelling expenses :—

J. H. Brethour, 6.55 ;	A. W. Burt, 3.45 ;	E. Coombs, 5.60 ;	
W. C. Ferguson, 5.55 ;	J. A. Houston, 8.30 ;	E. L. Hill, 3 75 ;	
A. E. Jewett, 7.50 ;	J. Jeffries, 7.30 ;	C. J. Logan, 4.45 ;	
H. S. McKellar, 8.40 ;	G. H. Reed, 1.45 ;	A. Stevensen, 4.80 ;	
S. Silcox, 5.90 ;			
R. Duncan: Examination books, 45.00			669 85

Normal School Practical Examinations :—Services—

W. Atkin, 20.00 ;	J. Connolly, 20 00 ;	N. W. Campbell. 40.00 ;	
W. J. Carson, 30.00 ;	A. B. Davidson, 30.00 ;	J. S. Deacon, 30 00 :	
W. Irwin, 35.00 ;	W. Johnston, 45.00 ;	J. H. Knight, 35 00 ;	
Thos. McKee, 35.00 ;	J. McBrien, 40.00 ;	D. McDiarmid, 20.00 ;	
R. Park, 15.00 ;	W. J. Summerby, 40.00 ;		

Travelling expenses :—

W. Atkin, 5.00 ;	N. W. Campbell, 16 75 ;	J. Connolly, 13.20 ;	
A. B. Davidson, 14.60 ;	J. S. Deacon, 16 00 ;	W. Irwin, 12.65 ;	
W. Johnstone, 25 50 ;	J. H. Knight, 15.35 ;	Thos. McKee, 20 00 :	
J. McBrien, 22 00 ;	D. McDiarmid, 9.40 ;	R. Park, 6.95 ;	
W. J. Summerby, 16.86			629 26

Normal School Examinations :—

Services setting papers and reading answers :—

G. E. Broderick, 42.00 ;	R. H. Cowley, 81.40 ;	W. E. Groves, 81.40 ;	
A. A. Jordan, 39.40 ;	D. A. Maxwell, 81.30 ;	J. R. Stuart, 81.40 :	
L. E. Staples, 81.40 ;	J. Suddaby, 81.40 ;		

Travelling expenses :—

G. E. Broderick, 11.95 ;	R. H. Cowley, 18.85 ;	D. A. Maxwell, 26.65 ;	
J. R. Stuart, 17 65 ;	L. E. Staples, 20.10 ;	J. Suddaby, 5.10..	670 00

County Model Schools ;—

Services Setting Papers :— A. McMillan, 30.00 ; E. D. Parlow, 20.00 :
Wm. Scott, 30.00 ; M. T. Scott, 20.00 ; J. F. White, 20.00 120 00

High School Entrance Examinations :—

Services re Board Meetings :—T. A. Craig, 25.00 ; J. D. Dickson, 25.00 ; A. Steele, 25 00.
Travelling Expenses :—T. A. Craig, 17.20 ; J. D. Dickson, 6.40 ; A. Steele, 3.25. 101 85

Parry Sound Model School :—

Services :—A. M. Currie, 20.00 ; Rev. Geo. Grant, 61.25 ; S. Phillips, 9 00 90 25

EDUCATION.—*Continued.*

DEPARTMENTAL EXAMINATIONS.—*Continued.*

Bracebridge Model School :—	
Services :—I. Day, 17.00; Hy. Reazin, 47.25; The Thomas Co., Stationery, 7.30	71 55
Kindergarten Examinations :—	
Setting papers, reading answers and appeals :—	
L. M. Currie, 48.80; E. Cody, 30.60; S. A. Morgan, 48.80; J. Stocks, 30.60.	
Travelling expenses :—J. Stocks, 19.00	177 80
Commercial Diploma Examinations :—	
Setting papers and reading answers and appeals :—	
J. D. Conklin, 46 75; J. H. Packham, 73.20; E. C. Srigley, 73.20; W. Ward, 49.00	242 15
Science Examinations :—	
A. Pride, services preparing specimens, 44.50; T. Eaton Co., cotton, 40c.;	
A. Millard, packing, 1.33; A. R. Fraser, corks, 1.45; W. A. Murray & Co., paper, 1.14;	
W. Lloyd Wood, glycerine, 1.58; Canadian Express Co. charges, 4.15;	
M. Rawlinson, cartage, 4.00	58 55
Biological Examinations :	
D. Chenay, services setting papers and reading answers, 39.80; A. B. Thompson, specimens, 76 25; J. E. Berkeley-Smith, Biological slides, 5.10	121 15
Services Board of Examiners :—	
W. H. Ballard, 30.00; A. Carruthers, 60 00; J. H. Cameron, 60.00;	
A. T. DeLury, 60 00; P. Edgar, 60.00; J. Fletcher, 60.00;	
W. L. Goodwin, 60.00; A. L. Langford, 60.00; J. Macgillivary, 60 00;	
F. W. Merchant, 60.00; W. S. W. McLay, 60.00;	
M. A. McKenzie, 60.00; W. S. Milner, 30.00; M. O'Brien, 60.00;	
R. Ramsay Wright, 60.00; G. M. Wrong, 60.00; A. H. Young, 60.00.	
Travelling expenses :—	
W. H. Ballard, 4.00; W. L. Goodwin, 32.85, J. Macgillivary, 30.75;	
F. W. Merchant, 31.85; M. O'Brien, 5.35; G. M. Wrong, M.A., 27.75	1,092 55
Educational Council travelling expenses :—	
J. Fessenden, 22.00; A. P. Knight, 173.60; W. Tytler, 38.50	234 10
Services re Executive Committee work :— W. S. Milner, 40.00; W. H. Ballard, 26.00	
Travelling expenses, W. H. Ballard, 13.00	79 00
C. J. Atkinson, services as assistant printer	265 25
Bruce Leadbetter, special services re Greek papers	100 00
G. L, Rutherford, services as telephone boy	25 00
Warwick Bros. & Rutter, printing and Bookbinding	578 19
L. K. Cameron, paper, 124.59; stationery, 1,010.89	1,135 48
Riordon Paper Mills, paper, 55.89; G. J. Castle, copy holder, 3 00	58 89
Trunk and Leather Goods Co., despatch bag, 5.00; C. Gripton, rubber stamp, 4.25	9 25
C. W. Dickinson & Co., mucilage sticks	25
Can. Typewriter Co., inspection of machines, 4.00	4 00
Copp Clark Co., books, 2.43; Brown Bros., sealing wax, files, etc., 161.55	163 98
Toronto Type Foundry Co., type, 63.91; Can. Printing Ink Co., ink, 6.00	69 91
Westman & Baker, printers' supplies, 2.25; John Haddon & Co., printers' supplies, 17.75	20 00
Queen City Oil Co., benzine, 93c.; W. A Brock, lead seals, wire, etc., 9.00	9 93
Baker & Addison Chemical Co., chemicals, 5.25; Evans & Sons, chemicals, 11.40.	16 65
National Electro and Stereo Co., engravings, etc	4 00
Ambrose Kent & Sons, engraving medals	3 80
J. & J. L. O'Malley, rent of tables, 8.40; Toronto Electric Light Co., power for press, 16.07	24 47
Holmes Protection Co., messenger service	10
Queen City Bicycle Delivery, messenger service	2 00
Toronto Railway Co., car tickets, 23.00; F. N. Nudel, to pay car tickets, 2.00	25 00
H. F. Taylor, telephone messenger, 5.00; W. Wilson, cab hire, 1.25	6 25
Can. Express Co., charges, 30.75; Dom. Express Co., charges, 26.62	57 37
Niagara and St. Catharines Navigation Co, freight charges	55
W. McMaster, postage stamps, 350.00; J. L. Scott, postage stamps, 59c	350 59
Cartage :—M. Rawlinson, 50c; Rapid Delivery Co., 19.40; F. Conley, 50c.;	
Can. Transfer Co., 1.50; W. J. Pickard, 50c.; Jno. Masters, 15c.; T. R. Haig, 25c.;	
J. Bannister, 1,00	23 80
Advertising :—*Torontonensis*, 10.00; *Mail and Empire* 3.60; Educational Pub. Co., 20.00;	
Queen's Quarterly, 20.00	53 60

NORMAL AND MODEL SCHOOLS, TORONTO.

SALARIES ($22,899.67).

Wm. Scott	Twelve months' salary as	Principal	2,450 00
W. H. Elliott	do	Vice-Principal	1,900 00
A. C. Casselman	do	Drawing Master	1,000 00
Eugene Masson	do	French Master	300 00
A. T. Cringan	do	Music Teacher	1,000 00
David Borland	do	Drill and Gymnastic Master	200 00
Emma Macbeth	do	Instructor Domestic Science	400 00
Angus McIntosh	do	Head Master Boys' Model School	1.600 00
R. W. Murray	do	First Assistant do	1,200 00
T. M. Porter	do	Second do do	1,200 00

EDUCATION.—*Continued.*

NORMAL AND MODEL SCHOOLS, TORONTO.—*Continued.*

SALARIES.—*Continued.*

Jean Wood	Twelve months' salary as	Third Assistant Boys' Model School		850 00
S. M. Ross	Four do	Fourth do	do	283 33
E. M. Sealey	Eight do	do	do	332 00
F. M. Taylor	Eight do	do	do	435 00
M. Meehan	Twelve do	Head Mistress Girls' Model School		1,000 00
M. K. Caulfield	do	First Assistant	do	850 00
E. M. Hill	do	Second do	do	650 00
F. M. Taylor	Four do	Third do	do	233 34
Alice Stuart	Eight do	do	do	566 00
A. F. Laven	Twelve do	Fourth do	do	650 00
Jean Somers	do	Instructor Calisthenics	do	500 00
Mary Macintyre	do	Director of Kinderg'n	do	1,000 00
Ellen Cody	do	Assistant do	do	480 00
George Vair	do	Head Gardener		600 00
J. Boasi	do	Assistant do		400 00
Patrick Gafney	do	First Engineer		700 00
Thomas Mannell	do	Second do		450 00
John Moore	do	Laborer		400 00
R. Gilpin	do	Janitor of Normal School		510 00
Thos. Williamson	do	do Boys' Model School		400 00
Bella Simpson	do	Janitress Girls' do		360 00

EXPENSES ($2,032.42).

Warwick Bros. & Rutter: Printing and bd'g, 94.91; Rolph, Smith & Co.: Stamping, 11.25	106 16
L. K. Cameron: Paper, 97.16; stationery, 115.97; Riordon Paper Mills: Paper, 3.60	216 73
W. McMaster: Postage stamps, 70 00; Copp, Clark Co.: Books, 387.12	457 12
Brown Bros.: Blank books, 2.10; Applied Art Guild, art book, 1.00	3 10
A. G. Doughty: Set "Siege of Quebec," 33.33; J. C. Witter: Photo prints, 9.35	42 68
Steinberger, Hendry Co.: Charts, maps, etc., 30.00; Dom. Pub. Co.: Map of Ont., 2.00	32 00
Chandler & Massey: Apparatus, 39.00; Map & School Sup. Co.: Brushes, etc., 7.50	46 50
Map and School Supply Co., lantern supplies, 16.57; A. H. Harkness, lantern slides, 47.60	64 17
W. E. Oldham: Cyclostyle paper, etc., 2.70; R. Simpson: Ribbon for Diplomas, 1.99	4 69
Whaley, Royce & Co: Tuning fork, .35; Ryrie Bros.: Invitations, 9.45	9 80
H. G. Paull: Engraving invitations, 4 50; A McIntosh: Grant for school games, 30.00	34 50
H. A. Wilson Co.: Tennis balls, etc., 6.50; Norma Banting: Substitute teacher, 12.00	18 50
Florence Dobie: Substitute teacher, 1.50; Estelle Steiner: Substitue teacher, 27.00	28 50
Miss Noble: Services assistant in Kindergarten	33 00
Kindergarten supplies: T. Eaton Co., 26.54; Selby Co., 119.83; E. Cody, 5.00; J. A. Simmers, 5.70; John Davis & Sons, 3.00; M. Macintyre, 5.00; Grand & Toy, 2.00; J. Dean, 1.00; A. Peterson, 1.25	169 32
Toronto School of Domestic Science: Course of lectures to students	100 00
Domestic Science supplies R. Simpson, 9.85; T. Eaton Co., 11.40	21 25
Frank Yeigh: Services illustrated lecture	12 00
A. S. Richardson: Services and expenses re lecture	12.75
E. M. Curzon: Course of Lectures, "Chemistry of Food,"	100 00
J. L. Hughes: Lecture tickets for students	30 00
Wm. Oldright, M.D.: Lecture on Sanitary Science	100.00
G. M. Wrong: Lecture to students, 20.00	20 00
E. Weir: Services as stenographer	15 00
M. White, pianist *re* calisthenic classes at 10.00 per month 70.00; M. D. Macbeth, do 30.00	100 00
E. H. Cummington, musical services *re* Empire day	3 00
A. Grant, drummer, re drill instruction, 1.00; G.L.Rutherford, part services phone boy.22.50	23 50
H. F. Taylor, part services messenger 12.50.; A. McIntosh: travelling expenses, 3.95	16 45
Wm. Scott, travelling expenses, 21.10; Expenses visiting schools in U. S., 152 45	153 55
J. B. Thomson: washing and painting busts, 17.00; Can Transfer Co.: cartage, 6 75	23 75
T. Williamson: cartage, .25; W. J. Church: cartage, .25; Doane Bros.: cab hire, 7.00	7 50
Toronto Railway Co.: car tickets, 10.00; Bell Telephone Co.: messages, .20	10 20
A. McIntosh, to pay duty, .20; Educational Pub. Co. advertising, 10 00	10 20
Toronto World: advertising, 1.50; *Queen's Quarterly*: advertising, 5.00	6 50

NORMAL SCHOOL, OTTAWA.

SALARIES ($20,641.99).

J. A. MacCabe	Eleven months' salary as	Principal		$2,295 00
S. B. Sinclair	Twelve do	Vice-Principal		2,000 00
J. A. Dobie	do	Drawing Master		900 00
J. Fleury	do	French Master		600 00
T. A. Brown	do	Music Teacher		1,000 00
E. D. Parlow	Eight do	Head Master Boys' Model School		1,000 00

EDUCATION.—*Continued.*

NORMAL SCHOOL, OTTAWA.—*Continued.*

SALARIES.—*Continued.*

J. H. Putman	Four months'	salary as	Head Master Boys' Model School			500 00
do	Eight	do	First Assistant	do		800 00
J. F. Sullivan	Four	do	do	do		400 00
do	Eight	do	Second do	do		800 00
F. A. Jones	Four	do	do	do		333 33
H. S. Williams	Twelve	do	Third do	do		850 00
Adeline Shenick	One	do	Head Mistress Girls'	do		100 00
M. E. Butterworth	Twelve	do	do	do		1,000 00
F. Hanington		do	First Assistant	do		850 00
A. E G. Wilson		do	Second do	do		800 00
Agnes Hanahoe	Ten	do	Third do	do		541 66
E. H. Keyes	Twelve	do	Instructor in Calisthenics			650 00
Eliza Bolton		do	Director of Kindergarten			1,000 00
Jessie Stocks		do	Assistant do			480 00
Bessie Livingstone	Ten	do	Domestic Science and Sewing			500 00
Arthur Heeney	Twelve	do	First Engineer and Gardener			649 00
Jas Mooney		do	Second do			500 00
Thos. Bingham		do	Laborer on Grounds			400 00
Oliver Macdonald		do	Janitor Normal School			510 00
Jas. Urquhart	Three	do	do Boys' do			100 00
E. J. McLaughlin	Eight and ½	do	do			283 00
Mrs. Seyhus	Ten	do	Janitress Girls' Model School			400 00
E. Murphy	Twelve	do	Night Watchman			400 00

EXPENSES ($1,479.94).

Warwick Bro's & Rutter: Printing and binding, 43 01; Rolph Smith & Co.: Stamping, 75c	43 76
L. K. Cameron: Paper, 9.20; stationery, 2 25; Riordon Paper Mills: Paper, 3.50	14 95
Graves Bros.: Twine, 25c; Jas. Hope & Sons: Blank books, etc, 287.78	288 03
Jas. Hope & Sons: Postage, 27.61; W. McMaster: Postage, 40.00	67 61
Books:—Jas. Hope & Sons, 54.90; Copp Clark Co., 71.38; Palmer & Co, 16.30; Historical Pub Co., 3.00; B. Nicholson, 2.66; T. A. Brown, 14.00; W. J. Gage & Co., 4.90; J Ross Robertson, 2 00; Little Brown & Co, 67c; J. B. MacKenzie, 85c; Col. R. B. Crucy, 1.25; Chas. Robertson & Co., 4.00; W. H. Baker & Co, 92c; A. G. Doughty, 33.33	210 16
G. N. Morang & Co: *Morang's Annual*, 7.00; Steinberger Hendry Co.: *Botany Manuals*, 60c	7 60
Might Directories: Directory, 3 00; A. S. Woodburn: Map of Ottawa, 5.00	8 00
J. Fraser Bryce: Photo of Premier, 5.00; J. L. Orme: Musical compositions, 1.64	6 64
Ottawa Drug Co.: Chemicals, 4 66; Wm. J. Topley: Lantern slides, 7.75	12 41
H. C. Brittain: Gold medal, 23.50; *Ottawa Free Press*: Invitation cards, 21.00	44 50
Truss Surgical Co.: Rubber sheeting, 30c; Bryson Graham & Co.: Croquet sets, 4.90	5 20
J. A. MacCabe: Grant towards games, 35.00; A. McGowan: Use of Varsity oval, 5.00	40 00
Geo. McGillivray: Supplies for games, 3.00; Ketchum & Co.: Supplies for games, 7 75	10 75
Services Substitute Teacher: Lydia Haviland, 22 00; J. O. White, 48.00; F. A. Jones, 60.00; M. M. Stalker, 18.00; M. Merritt, 74.00	222 00
Selby & Co.: Kindergarten supplies	60 47
Domestic Science:—Butterworth & Co.: Utensils, 10.40; Bryson Graham & Co.: Ut'ls, 15.91; Ottawa Gas Co.: Use of and connecting stove, 4.45; Bate & Co.: Supplies, 5.15; S. W. Lee: Supplies, 4.44; C. Ross & Co.: Supplies, 2.89; J. Murphy: Supplies, 2.45; H. G. Stanley. Supplies, 30c	45 99
A. H. Abbott: Preparing material for illustrated lecture	5 00
G. M. L. Brown. Illustrated lecture on South America	10 00
Y.M.C.A.: Instruction in drill and calisthenics	42 00
M. E. Conway: Services clerk and stenographer	72 00
J. A. MacCabe: Travelling expenses visiting schools in U.S	145 10
Ottawa Electric Railway Co.: Fares of students to Experimental Farm	16 50
Pinhey & Co.: Brokerage, 50c; Can. Express Co.: Charges, 4.15	4 65
Dom. Express Co.: Charges, 8.92; C. P. Railway: Freight charges, 60c	9 52
J. A. MacCabe: Telegrams	2 00
Advertising:—Educational Pub. Co., 30 00; *Queens Quarterly*, 5.00; *'Varsity*, 5.00; *Ottawa Journal*, 6.50; *Free Press*, 3.40	49 90
Educational Pub. Co.. Copies *Canadian Teacher*, 5.00; *Can. Housekeeper*, subscription, 1.00	6 00
Sundry newspapers: Subscription	29 20

NORMAL SCHOOL, LONDON.

SALARIES ($6,848.33).

F. W. Merchant	Twelve months'	salary as	Principal	2,450 00
John Dearness		do	Vice-Principal	1,850 00
S. K. Davidson		do	Drawing and Writing Master	200 00
Fred L. Evans		do	Music Master	200 00

EDUCATION.—*Continued.*

NORMAL SCHOOL, LONDON.—*Continued.*

SALARIES.—*Continued*

Wm. Gregory	Ten months' salary as	Physical Instructor	115 00
Agnes MacKenzie	Twelve do	Kindergarten Teacher	100 00
Nellie Heffernan	do	Clerk and Stenographer	400 00
Andrew Templeton	do	Engineer	600 00
Thomas Casey	do	Gardener	500 00
W. C. Robertson	do	Caretaker	433 33

EXPENSES ($2,770.63).

Warwick Bro's & Rutter: Printing and binding, 37.82 ; L. K Cameron: Stationery, 4.91	42 73
Riordon Paper Mills: Paper, 3 92 ; Jno. Mills: Stationery, 14 68	18 60
Reid Bro's & Co: Stationery and paper, 85.80 ; London *Advertiser*: P't'g and stat'y, 26.25	112 05
W. McMaster Postage stamps, 30 00 ; Postmaster: Postage stamps, 6c	30 06
Creelman Bro's: Typewriter supplies, 21.60 ; A. Talbot & Co: Stamp and pad, 1.10	22 70
Books: C. E. Lauriat, 3 00 ; Col. R B. Crucy, 1.25 ; J. Ross Robertson, 2.00 ; Historical Pub Co, 3.00 ; B. Nicholson, 2.67 ; Little, Brown & Co, 67c W. J. Gage & Co, 46.21 ; J. B. Mackenzie, 85c ; C. Robertson & Co, 4.00 ; Houghton, Mifflin & Co, 2.70 ; W. Briggs, 22 66 ; G. N, Morang & Co, 32.94	120 95
G. N. Morang & Co: Morang's Annual, 4.00 ; Monthly Review, 5 00.	9 00
Williamson & Co Encyclopedia, 6.00 ; J. G. Foster & Co: Directory, 3.00	9 00
J. Fraser Bryce: Photo of Premier, 5.00 ; H. C. Brittain: Gold medals, 23 50	28 50
Edison M'f'g Co: Electric apparatus, 29.00 ; Rogers Electric Co: Electric apparatus, 1.60	30 60
Electrical Construction Co: Apparatus, 11 53 ; Michigan Elec Co: Generator, 44 00	55 53
Dr. C. H. Zeigler: Apparatus, 14.00 ; Map & School Supply Co: Apparatus, 55.18	69 18
J. Forman: Battery, lamps, etc, 15.87 ; Anderson & Nelles: Tubes, chemicals, etc, 154.78	170 65
C. Potter: Oxy-hydrogen gas, 4.80 ; London Electric Co: Cord, lamps, etc. 3.20	8 00
Wm. Stevely & Son: Lantern, 2.60 ; Steinberger Hendry Co: Telescope, 200.00	202 60
Map and School Supply Co: Calculator, 9 00 ; W. C. Ferguson: Lantern lens, 35.00	44 00
Sharpe & Co Photo supplies, 15 80 ; J. I. Anderson: Basket-ball goals, 4.00	19 80
A. Johnston Repairs, 60c ; A. Screaton & Co: Supplies for sewing class, 5.80	6 40
Sec'y Board of Education, London: Grant providing Public School for practical teaching	1,500 00
Dr. C. T. Campbell Lecture on sanitary science	100 00
F. Yeigh: Services lecturing, 16 00 ; expenses, 11.75	27 75
F. W. Merchant: Travelling expenses, 9 90 ; London Street Railway: Car tickets, 5.00	14 90
G N.W. Tel Co: Telegrams, 63c ; C.P.R. Tel Co: Telegrams, 25c	88
Bell Telephone Co: Service, 51 75 ; messages, 5.20 ; American Express: Charges, 70c	57 65
Can Express Co: Charges, 18 17 ; Dom Express Co: Charges, 8.78	26 95
G. T. Railway Co. Freight charges, 2 65 ; J. A. Yarker Cartage, 25c	2 90
Educational Pub Co: Advertising, 10.00 ; *Queen's Quarterly*: Advertising, 5.00	15 00
Can Housekeeper: Subscription, 1.00 ; Jno. Mills: Subscriptions to newspapers, 23.25	24 25

HIGH SCHOOLS AND COLLEGIATE INSTITUTES ($109,288.31).

Treasurer, Board High Schools and Collegiate Institutes :—

Alexandria, 627.86 ; Almonte, 701.30 ; Arnprior, 599.19 ; Aurora, 605.16 ; Athens, 654.20 ; Arthur, 589.18 ; Aylmer, 879.05 Beamsville, 472.96 ; Belleville, 790.78 ; Berlin, 782.23 ; Bowmanville, 778 63 ; Bradford, 562.27 ; Barrie, 1,069.30 ; Brantford, 1,245.33 ; Brockville, 1,139.53 ; Brampton, 838.92 ; Brighton, 455 00 ; Caledonia, 551.78 ; Campbellford, 603 92 ; Carleton Place, 708 22 ; Cayuga, 554 92 ; Colborne, 450 22 ; Cornwall, 874.67 ; Chatham, 1,236 68 ; Clinton, 938.26 ; Cobourg, 940.34 ; Collingwood, 924.54 ; Deseronto, 642.77 ; Dundas, 632 92 ; Dunnville, 593.28 ; Dutton, 565 87 ; Elora, 534.08 ; Essex, 656 63 ; Fort William, 460.65 ; Fergus, 568.53 ; Forest, 577.37 ; Galt, 1,189 61 ; Gananoque, 657 87 ; Grimsby, 427.50 ; Georgetown, 584.79 ; Glencoe, 622.02 ; Gravenhurst, 472.91 ; Goderich, 1,021.67 ; Guelph, 1,097.36 ; Harriston, 563 76 ; Hawkesbury, 612.53 ; Hagersville, 593 34 ; Hamilton, 1,311 80 ; Iroquois, 709.96 ; Ingersoll, 1,001.32 ; Kingston, 1,215 65 ; Kemptville, 712.08 ; Kincardine, 726 23 Lindsay, 1,204.17 ; Listowel, 624.23 ; Lucan, 673.31 ; Leamington, 670.14 ; London, 1,341.55 ; Madoc, 568.64 ; Markham, 688.82 ; Mitchell, 639 17 ; Mt. Forest, 686 78 ; Meaford, 755 25 ; Morrisburg, 1,024 16 ; Newburgh, 541.14 ; Newcastle, 466 60 ; Napanee, 1,038.05 ; Niagara Falls, 1,079.64 ; Niagara Falls S, 553.28 ; Niagara, 417.10 ; Newmarket, 637.34 ; Norwood, 583.30 ; North Bay, 500.00 ; Oakville, 459.61 ; Omemee, 446 77 ; Orangeville, 783 52 ; Oshawa, 733 84 ; Orillia, 1,014.89 ; Ottawa, 1,288 81 ; Owen Sound, 1,192.86 ; Paris, 630.84 ; Parkhill, 563 30 ; Pembroke, 701 09 ; Petrolea, 710.87 ; Picton, 853.21 ; Perth, 969 79 ; Peterborough, 1,167.83 ; Prescott, 590.26 ; Port Arthur, 550.97 ; Port Dover, 445.80 ; Port Elgin, 576.69 ; Port Hope, 815.11 ; Port Perry, 666 61 ; Port Rowan, 416.42 ; Renfrew, 717.21 ; Richmond Hill, 467.82 ; Rat Portage, 500.00 ; Ridgetown, 926.42 ; Simcoe, 757.84 ; Smith's Falls, 673.13 ; Smithville, 497.42 ; Streetsville, 458.85 ; Sydenham, 555.82 ; Sterling, 468.26 ; Sarnia, 1,057.90 ; Seaforth, 956.68 ; Stratford, 1,190.10 ; Strathroy, 915.34 ;

EDUCATION.—*Continued.*

HIGH SCHOOLS AND COLLEGIATE INSTITUTES.—*Continued.*

Sault Ste. Marie, 500.00 ; St. Catharines, 1,194.63 ; St. Mary's, 912.37 ; St Thomas, 1,244.31 ; Toronto (Jarvis), 1,285.09 ; Toronto (Harbord), 1,319.39 ; Toronto (Jameson), 1,290 70 ; Toronto Junction, 943.78 ; Thorold, 598.54 ; Trenton, 614 81 ; Tilsonburg, 606.71 ; Uxbridge, 618.34 ; Vankleek Hill, 770.21 ; Vienna, 430.56 ; Whitby, 848.32 ; Walkerton, 741.28 ; Wardsville, 430 18 ; Waterdown, 500.59 ; Welland, 655.26 ; Weston, 484.09 ; Williamstown, 599.62 ; Windsor, 1,194.60 ; Woodstock, 1,191.71 ; Watford, 643.70 ; Wiarton, 587.48 ; Waterford, 587.70 ;

Special Grants.

Treasurer, High School Board :—
Fort William, 460 65 ; Gravenhurst, 472.92 ; Port Arthur, 550.97 ..... 102,000 00
J. E. Hodgson: Twelve months salary as Inspector, 2,750.00 ; travelling expenses, 400.00 3,150 00
J. Seath: do do 2,750.00 ; do 510.76 3,260 76
Jno. Millar: Travelling expenses, 14.60 ; Warwick Bro's & Rutter: P't'g and binding, 661.26 675 86
L. K. Cameron: Paper, 10.88 ; stationery, 15.46 ; Grand & Toy: Stationery, 2.75 ..... 29 09
Brown Bros: Stationery, 14 00 ; Riordon Paper Mills: Paper, 23.60 ..... 37 60
W. McMaster: Postage stamps, 45.00 ; Copp, Clark Co: Lithographing diplomas, 80.00 125 00
Educational Pub Co: Advertising 10 00

ONTARIO NORMAL COLLEGE.

SALARIES ($3,725.00).

James A. McLellan ..Twelve months' salary as Principal 3,000 00
R. A. Thompson ..... do Vice-Principal 500 00
Louise McLellan ..... do Clerk 225 00

EXPENSES ($5,684.50).

Warwick Bros. & Rutter: Printing and binding, 5.50 ; L. K. Cameron, paper, 2.58 ..... 8 08
J. G. Cloke: Stationery, etc, 34.60 ; Alex. Mitchell: Stationery, 2.00 ..... 36 60
W. McMaster: Postage stamps, 45.00 ; Alex. Mitchell: Postage stamps, 9.00 ..... 54 00
Books :—Historical Pub Co, 3 00 ; B Nicholson, 2.67 ; Little Brown Co, 67c ;
J. B. MacKenzie, 85c ; W. J. Gage & Co, 4 90 ; J. Ross Robertson, 2.00 ;
Col. R. B. Crucy, 1.25 ; C. Robertson & Co, 4.00 ; J. G. Cloke, 31.25 ..... 50 59
Wm. Tyrrell & Co: Periodicals, 67.70 ; G. N. Morang & Co: *Morang's Annual*, 4.00 ..... 71 70
Might Directories: Directory, 2 50 ; J. Fraser Bryce: Photo, 5.00 ..... 7 50
F. F. Macpherson: Services as Teacher of reading 1901 and 1902 ..... 100 00
Services Lecturing to Students :—J. B. Turner, 65.00 ; J. T. Crawford, 65.00 ;
W. M. Logan. 65.00 ; E. S. Hogarth. 65.00 ; F. F. Macpherson, 65 00 ; J. Gill, 65.00 ;
A. Paterson, 65.00 ; J. A. Morgan, 65.00 ; G. L. Johnston, 65.00 ..... 585 00
J. A. MacCabe: Services lecturing on sanitary science 100 00
F. Yeigh: Services *re* illustrated lecture, 12.00 ; travelling expenses, 6.20 ..... 18 20
A. S. Richardson: do 8.50 ; do 4.00 ..... 12 50
G. M. Milligan: Travelling expenses lecturing 5 00
Treas. O.N.C. Literary Society: Grant *re* Prof. Alexander's lectures on Browning 25 00
Treas. O.N.C. Literary Society: Annual grant 25 00
Sec'y Board of Education, Hamilton Grant 4,500 00
Womens Athletic Assn: 24.00 ; Normal College Athletic Assn: Grant, 25.00 ..... 49 00
Dom Express Co. Charges, 75c ; Can Express Co: Charges, 8c 83
Ont Normal College Monthly: Advertising, 4.50 ; Educational Pub. Co: Advert'ing, 20.00. 24 50
Varsity: Advertising, 5.00 ; *Queen's Quarterly*: Advertising, 5.00 ..... 10 00
Canadian Housekeeper: Subscription 1 00

DEPARTMENTAL LIBRARY AND MUSEUM.

SALARIES ($4,450.00).

J. George Hodgins ...Twelve months' salary as Librarian and Historiographer 2,000 00
D. Boyle ..... do Curator of Museum 1,100 00
Jane M. Crooks ..... do Assistant Librarian 550 00
E. A. Faulds ..... do Clerk 800 00

EXPENSES ($3,641.08).

Books :—
Copp Clark Co. 193.79 ; Linscott Pub Co, 20.00 ; G. N. Morang & Co, 24.45 ;
Selby & Co, 1.25 ; Wm. Tyrrell & Co, 39.48 ; C. E. Lauriat & Co, 18.05 ;
Historical Pub Co, 3.00 ; Wm. Briggs, 7.29 ; Orange Judd & Co, 3.67 ;
Rev. W. W. Smith, 1 50 ; Imperial Book Co, 30.00 ; Virtue & Co, 45.50 ;
Little, Brown Co, 12.00 ; Houghton, Mifflin & Co, 5.40 ; Jas. Delaney, 3 00 ;
Can Historical Co, 5.00 ; U. C. Tract Society, 1.35 ; J. B. Mackenzie, 85c ;
C. P. Sparling & Co, 2.00 ; Col. R. B. Crucy, 1.25 ; J. Ross Robertson, 2.00 ;
J. K. Williams, 3.00 ; J. H. Patton, 2.00 ; M. Spackman, 9.00 ; B. Nicholson, 2.50 ;
C. Robertson & Co, 4.00 ; A. McMurchy, 1.00 ..... 442 33

EDUCATION.—*Continued.*

DEPARTMENTAL LIBRARY AND MUSEUM.—*Continued.*

EXPENSES.—*Continued.*

Subscriptions :—

Am. Anthropologist, 4.00 ; *Am. Historical Review*, 4.00 ; *Am. Folk Lore*, 3.00 ;
Am. Kitchen Magazine, 1.00 ; *Acta Victoriana*, 1.00 ; *Academisis*, 1.00 ;
Am. Teacher, 1.15 *Birds and all Nature*, 1.50 ; *Botanical Gazette*, 4.00 ;
Bookseller and Stationer, 1.00 ; *Century*, 4.35 ; *Canadian Teacher*, 2.50 ;
Canadian Mute, 50c ; *Canadian Boy*, 75c ; *Canadian Freeman*, 1.00 ;
Canadian Statesman, 3.00 ; *Can. Church Magazine*, 1.00 ; *Canadian Manufacturer*, 1.00 ;
Canadian Journal Medicine and Surgery, 1.00 ; *Canadian Architect and Builder*, 2.00 ;
Can. Educational Monthly, 2.00 ; *Can. Magazine*, 2.50 ; *Canadian Bookseller*, 1.00 ;
Can. Practictioner and Review, 2.00 ; *Can. Home Maker*, 3.00 ; *Canadian Baptist*, 1.50 ;
Contemporary and Quarterly Review, 8.50 ; *Child Garden*, 1.00 ; *Current History*, 1.50 ;
Citizen and Country, 75c ; *Christian Guardian*, 1.00 ; *Church Record*, 1.00 ;
Catholic Register, 1.50 ; *Catholic Record*, 2.00 ; *College Topics*, 1.00 ;
College Times, 1.00 ; *Dominion Medical Monthly*, 1.00 ; *Educational Times*, 2.00 ;
Educational Record, 3.00 ; *Education* (Boston), 3.00 ; *Events*, 2.00 ;
Educational Journal Western Canada, 1.00 ; *Economist*, 2.00 ;
Educational Review (N.Y.), 3.70 ; *Educational Review* (N.B.), 1.00 ; *Forum*, 3.50
Farmers' Advocate, 1.00 ; *Farming World*, 1.00 ; *Home of Education*, 2.25 ;
Journal Education, 70c ; *Kindergarten Magazine*, 3.00 ; *Literary Digest*, 3.00 ;
Literary Jour. and News, 5.00 ; *Ladies' Magazine*, 1.00 ; *London Illustrated News*, 7.00 ;
Mind and Body, 1.00 ; *McMaster University Monthly*, 1.00 ; *Methodist Magazine*, 2.00 ;
Monthly Review, 5.00 ; *Museum Journal*, 2.66 ; *McClure's Magazine*, 1.25 ;
Moon Co, 2.00 ; *Morang's Annual*, 4.00 ; *N. American Review*, 5.00 ;
New England Home of Education, 2.75 ; *Nineteenth Century*, 4.50 ; *Nature*, 7.00 ;
N. Y. Evening Post, 9.00 ; *Our Boys*, 25c ; *Ontario Normal College Monthly*, 50c ;
Outlook, 3.00 ; *Penn. School Journal*, 1.75 ; *Presbyterian Review*, 1.50 ;
Publishers' Weekly, 3.00 ; *Printer and Publisher*, 2.00 ; *Penman's Art Journal*, 1.00 ;
Popular Science News, 1.60 ; *Popular Science Monthly*, 3.00 ; *Popular Educator*, 80c ;
Pedagogical Seminary, 5.00 ; *Queen's Quarterly*, 1.00 ; *Review of Reviews*, 3.50 ;
Scottish Canadian, 1.00 , *Scottish American*, 3.00 ; *Science*, 5.35 ;
School and Home Education, 1.25 ; *School Journal*, 2.00 ; *School Review*, 1.50 ;
School Foundations, 80c ; *Schoolmaster*, 3.00 ; *Truth*, 3.00 ;
Teacher's Institute, .80 ; *Trinity University Review*, 1.00 ; *United Canada*, 1.50 ;
University of Toronto Monthly, 1.00 . *University of Chicago Express*, .75 ;
University State of N. Y., .75: *Varsity* 1.00 : *Westminster*, 1.00 :

Wm. Tyrrell & Co., magazines, 70c . J. P. McKenna, magazines, 35c : 220 96
Toronto Railway and Steamboat Guide, sub., 5.00 : Sundry Newspapers sub , 141.25 146 25
Warwick Bros. & Rutter. prtg and binding, 201.10 : Riordon Paper Mills, paper, 78.80 279 90
L. K. Cameron, stationery, 8.00 ; paper, 12.13 : W. McMaster, postage stamps, 215.00 235 13
W. Hewitt, postage stamps, 1.00 : Postmaster, postage stamps, 49c. 1 49
Can. Typewriter Co., inspection of typewriters, 3.00 : C. Gripton, rep'r'g stamps, 2.10 5 10
E. J. Rowley, portfolio of portraits of Governors, Lt.-Governors and Administrators 25 00
L. Thompson, services in library, 72.00 : L. Ramey, services in library, 57.50 ... . 129 50
J. R. Bone, services in library, 54.00 : M. A. Bailey, services in library, 64.00 ..... 118 00
B. Burgar, services in library, 54.00 : G. L. Rutherford, part serv's as tel. boy, 15.00 69 00
H. F. Taylor, part serv's 'phone boy, 7.50 : Ont. Literary Asso., membership fee, 4.00 11 50
Robinson & Heath, brokerage, 1.00 : C. W. Irwin, brokerage, .25..... .... 1 25
Toronto Railway Co., car tickets, 13.00: Can. Express Co., charges, 2.30..... 15 30
Dominion Express Co , charges, 7.70: Hon. R. Harcourt, refund express charge, 60c.. 8 30
Rapid Del. Co., cartage, 2.10 H. M. Wilkinson, to pay sundries, 84c..... 2 94

Museum :—

L. Thompson, serv. asst. in Museum, 312.00: F. W. Waugh, asst. in museum, 50.00.. 362 00
E. Dennis, stenographer, 76.50: J. S. Boasi, services night attendant, 1.00..... ... 77 50
T. Mannell, services night attendant, 1.50: T. Williamson, serv. night attendant, 50c.. 2 00
C. T. Smith, cleaning pictures, 28.12: Can. Typewriter Co., typewriter inspec., 1.00.. 29 12
W. T. Evans, legal services and witness fees re alleged trespass by D. Boyle 79 50
Am. Anthropological Assn., dues and post office order 3 03
Miss Mildred Peel, bust and replica of Rev. Dr. Teefy 175 00
do of Rev. Provost Macklem 125 00
do on account bust Hon. J. M. Gibson 100 00
Lillian Slean, bust of Napoleon, 1.00 : Mrs. T. M. Hennessey, statuette, 15.00..... 16 00
H. A. Castrucci, statuette, 3.00 ; repairs to busts statues, etc., 45.00..... 48 00
Mrs. M. H Reid, oil painting, "Pines at Sunset" 100 00
E. Bruenech, water color, "Old Fort Mississaga," 15 00
G. H. Turner, photo York Pioneers 5 00
A. F. Hunter, manuscript on archæology Twp. Medonte 152 00
G. E. Laidlaw, purchase of specimens, 5.50 ; expenses of self and guide, 4.50 ..... 10 00
Union Trust Co., archæological specimens, 15.00 : W. Bell, relics, 11.00 ..... 26 00
J. Maughan jr., services dressing exhibits, 16.80 ; materials, 2.00 .... 18 80
Mrs. J. F. McDonald, Indian relics, 11.00 : Rev. T. Shinger, Eskimo materials, 50.00. 61 00
Dr. R. W. Large, archæological specimens from B. C. museum 175 00
A. T. Cringan, services transcribing Indian melodies 50 00
W. J. Winternberg, services re achæological researches..... 50 00

EDUCATION.—*Continued.*

DEPARTMENTAL LIBRARY AND MUSEUM.—*Continued.*

EXPENSES.—*Continued.*

H. M. Stevenson, lettering cards, 2.65 :	Woltz M'f'g. Co., bronze, frames, etc., 28.42 ..		31 07
E. Harris Co.. glass for frames, 14 96 :	J B. Thomson, reglazing, varnish. etc., 30 08.		45 04
Aikenhead Hardware, hooks, 95c. :	MacKenzie & Co , gold tablets for pict'rs, 7.95....		8 90
J. B. Smith & Sons, pedestals, 19 00 :	The Holgates, chemicals, 6.55		25 55
T. Eaton & Co., mirror, 20c :	J. P. McMillan, flags, 2.00		2 20
R. S. Williams, repairs to phonograph, 50c :	H M. Wilkinson, sundries, 92c.....		1 42
D Boyle, travelling expenses and disbursements.....			75 20
Hartford Fire Ins. Co., insurance on birds in cases			25 00
Warwick Bros. and Rutter, printing cards, 65c :	C. W. Irwin, brokerage, 25c..		90
C. P. Railway Co., freight charges, 16.85 :	G. T. Railway Co., freight charges, 45c....		17 30
Dom. Express Co., charges, 5.30 :	Can. Express Co., charges, 4.40..		9 70
Toronto Railway Co., car tickets, 6.00 :	H. Purcell, cartage, 60 : A. Blair, cartage, 30c		6 90

SCHOOL OF PRACTICAL SCIENCE.

SALARIES ($25.425 00).

J. Galbraith	Twelve months'	salary as	Professor in Engineering, and Principal....	3,200 00
W. H. Ellis	do	do	Applied Chemistry	1,500 00
A. P. Coleman	do	do	Metallurgy and Assaying	2,000 00
L. B. Stewart	do	do	Surveying	1,800 00
C. H. C Wright	do	do	Architecture	1,800 00
T. R. Rosebrugh	do	do	Electrical Engineering.....	1,800 00
J. A. Duff ..... Nine	do	Lecturer in	Applied Mechanics	975 00
J. McGowan.....Three	do	do	do	325 00
G. R. Mickle .....Twelve	do	do	Mining	1,200 00
R. W. Angus	do	do	Mechanical Engineering	1,200 00
J. W. Bain	do	Demonstrator in	Analytical Chemistry.....	850 00
A. T. Laing	do	do	Surveying and Ass't Secretary	1,150 00
Wm. Monds ....Nine	do	do	Mechanical Engineering	525 00
H. G. McVean.....Three	do	do	do	175 00
J. A. DeCew.....Nine	do	do	Ass't Lecturer Chemistry	375 00
M. C. Boswell .....Three	do	do	do	125 00
W. H. Price .....Three	do	do	Electrical Engineering.....	200 00
A. H. Harkness .....Nine	do	Fellow in	Civil Engineering	375 00
W. C. Tennant .....Three	do	do	do	125 00
J. A. Craig .... Twelve	do	do	Mechanical Eugineering.....	500 00
E. G. R. Ardagh.....	do	do	Chemistry.....	500 00
J. T. M. Burnside....Nine	do	do	Drawing.....	375 00
A. H. McBride .... Three	do	do	do	125 00
A. H. Robinson.....Nine	do	do	Mining.....	375 00
J. G. McMillan . ... Three	do	do	do	125 00
E. V. Neelands .....Three	do	do	Surveying	125 00
W. G. Chace..... ..Nine	do	do	Electrical Engineering.....	375 00
M. V. Saeur.....Three	do	do	do	125 00
David Sinclair. .... Twelve	do	Attendant in	Chemistry	500 00
Geo. Lamb	do	do	Metallurgy.	350 00
E. Tozer..... ..	do	do	Mining	200 00
W. J. Graham	do	Caretaker	... .	750 00
W. Simpson	do	Engineer	....	800 00
A. F. McKay..... Eight	do	Stoker	....	320 00
Wm. B. Scott.....Four	do	Night Fireman	....	180 00

EXPENSES ($4,331 71).

Apparatus and Supplies for Laboratories :—			
Eureka Mineral Wool Co, 2.50:	Eimer & Amend, 223.99.	T. R. Haig, 12 20:	
Polson Iron Works, 1.25:	Toronto Electric Light Co, 20.02:	C. W. Coleman, 7.50:	
Ontario Rubber Co, 9 82:	Rice Lewis & Son, 43.61:	R.A.L.Gray Co, 12 20:	
Canadian General Electric Co,49.23:	Toronto Electrical Works, 2.50.	Jas Foster, 18 50:	
Aikenhead Hardware, 176.69:		Queen City Oil Co,.21.43:	
Map and School Supply Co, 110.36:		Canada Portland Cement Company, 3 90:	
Crosby Steam Gange and Valve Co, 10.50:	C. Potter, 1.85:	Chandler & Massey, 8.98:	
D. Pike Co, 10 80:	C R. Peterkin, 16.00:	Dodge Mfg. Co, 3.57:	Kilgour Bros, 16.00:
Firstbrook Box Co, 3.25.....			786 65
Castings for Laboratories :—Dean Bros, 12 51:		John Whitfield Co, 84.65:	
Rice, Lewis & Son, 18.71:	Robb & Kay, 13.30:	Purdy Mansell Co, 20 48.....	149 65
Chemicals, etc :—Lyman Bros, 414.25:	Lyman Sons & Co, 10.64:	Evans & Sons, 18.90...	443 79
F. J. Marthen, rock samples, 8 20:	F. Cochrane, ore, freight etc, 22.67		30 87
Can. Goldfields, Ltd, ore samples, 8.10:	H. F. Sharpe & Co, photo supplies, 347 33		355 43

EDUCATION.—*Continued.*

SCHOOL OF PRACTICAL SCIENCE.—*Continued.*

EXPENSES.—*Continued.*

Carl Schleicher & Schull, draw. paper, etc., 101.92: Art Metropole, supplies, 55.62..... $157 54
Thos. Henry, blue print paper, 3.75: Engineering Society cross section paper, 4.00 ..... 7 75
E. Wood, architectural stereoscopic photos and cabinet 92 10
H.W.Price, revising switchboard, 59 20: Geo. Pearsall, sharpening saws, 1.45..... 60 65
Books :—Wm Tyrrell & Co, 11.50: D. Van Nostrand Co, 187 58 T. Henry, 10 55:
Lemcke & Buechner, 13.95. Am. Inst. Mining Engineers, 61.00: A. Chausse, 1 00:
E.& F. N Spon, 7.90: Jno. Wiley & Son, 8.44: P. S. King & Co, 1.64:
Vannevar & Co, 1.62. ..... 305 18
Subscriptions :—Power, 1,00: Can. Mining Review, 3.00: Engineering Magazine, 4 00:
Studio, 3.50: Eng. Builder, 6.50 Academy Architecture, 3.00:
Architects Record, 1.40: Engineer and Mining Journal, 4 63:
Can. Architect and Building News, 5 00: Eng. News Pub. Co, Year Book, 2.53:
Am. Inst Mining Engineers, 6.00: Can. Electric News, 1.00: Reviews, 82 20:
Sundry Newspapers, 1.50 ..... 125 26
Might Directories, directory, 5.00: R. Freidlander & Sohn, periodicals, 204.60..... 209 60
Copp Clark Co, almanacs, 1.05: Rolph Smith Co, typographical maps, 87 50 ..... 88 55
Copp Clark Co. mounting maps, 7.00: Engineering Soc'y, S.P.S. grant re report, 50.00 ... 57 00
M. Armour, stenogr re exam report, 15.00. C. Rogers & Sons Co, rent of tables, 12.50. 27 50
Office Specialty Co, card cabinet, 21.00: Warwick B.& Rutter, p't'g calendar, etc, 196 88 217 88
Hutchison & Co, prtg exam. papers, 111 30: Univ Press, prtg exam. papers, 192.27.. 303 57
Rolph, Smith & Co, stamping, diplomas, etc, 60.50: L. K. Cameron, paper, 1.15..... 61 65
L. K. Cameron, stationery, 186 92 Grand & Toy, stationery, 17.05 ..... 203 97
Brown Bros, stationery, 9 65: D. C. Hendrie, postage stamps, 30 00 ..... - 39 65
G. P. Smith, post. stamps, 30.00: N. Withers, post. stamps, 16 00 C. Gripton, stamps, 3.75 49 75
R. M. Williams, engrossing diplomas, 10 15: Creelman Bros Typewriter Co, ribbons, 5.25.. 15 40
Littlejohn & Vaughan, electro type, .25: Alexander Engraving Co, zinc plan, 3.04 ..... 3 29
Fletcher M'fg Co, inkfillers, tripods, etc, 21 05: gas stove, 7.10 ..... 28 15
P. W. Ellis & Co, repairing clock bells, 1.00 ..... 1 00
Robinson & Heath, freight brokerage, etc, 102,21: Dom. Express Co, charges, .35 .... 102 56
Can. Express Co, charges, 2.15: C. P. Railway, freight charges, 8.80 ..... 10 95
G. T. Railway: Freight charges, 11.59 ; G N. W. Tel Co: Telegrams, 1.74..... 13 33
C. P. R. Tel Co: Telegrams, 1.21 ; Can Transfer Co: Cartage, 2.00 ..... 3 21
J. Lester: Cartage, 1.75 ; W. Goddard Cartage, 1.50 ; J. Galbraith: Sundry expenses, .35 3 60
Advertising:—Alumni Association, 61 33 ; Catholic Register, 6 25 ; Westminster Co, 29 00 ;
Ontario Pub Co, 87 50 ; Can. Engineer, 30 00 ; Torontonensis, 25.00 ; Can Mining
Review, 75.15 ; Educational Pub Co, 10.00 ; Engineering Society S.P.S., 10.00 ;
Rideau Press, 40.00 ..... 376 23

PUBLIC LIBRARIES ($54,288.36).

S. P. May .....Twelve months' salary as Superintendent..... 1,700 00
W. P Lemon..... do do Clerk..... 800 00
Treasurer Public Library.—

Allans Mills, 19 65:	Acton, 157.00:	Arthur, 134 20:	Alliston, 57.05:
Adamston, 47 60:	Avonmore, 160.00:	Aylmer, 200 00:	Almonte, 145.95:
Arkona, 16.75:	Atwood, 147.10	Arnprior, 130 60:	Alton, 108.60:
Ailsa Craig, 73.90:	Amherstburg, 157.20:	Ancaster, 60.00:	Aurora, 95.10 :
Alma, 107 55:	Angus, 62.25	Algonquin, 119.00:	Ayr, 101 00:
Auburn, 70.75:	Aberarder, 56 80:	Blenheim, 200 00:	Burks Falls, 200.00:
Brockville, 200.00:	Barrie, 200 00:	Brighton, 196 70:	Binbrook, 77.10:
Bridgeburg, 97.90:	Bloomfield, 133.70:	Brussels, 197 20:	Brigden, 160 00:
Bracondale, 160,00:	Brantford, 200 00	Bowmanville, 149.00:	Brooklin, 160.00:
Bothwell, 180.40:	Beamsville, 120 00:	Bradford, 43.40:	Bolton, 98 00:
Belleville, 200.00:	Bracebridge, 124,30:	Brucefield, 160 00:	Beeton, 102 70:
Bellwood, 93,10:	Belmont, 40 20	Bayham, 65 85:	Bobcaygeon, 12.45:
Badjeros, 160.00	Beachville, 160.00:	Burford, 164.10:	Belfountain, 160.00:
Beaverton, 115.80:	Baysville, 77.60:	Bunyan, 40 00:	Burlington, 65.35:
Brampton, 200.00:	Bruce Mines, 160.00:	Berlin, 200.00:	Bloomsburg, 22.50:
Berwick, 160 00:	Baden, 116.70:	Chapleau, 125.50:	Chatsworth, 61.25:
Caistor 101 05	Combray, 80.60:	Cookstown, 160.00:	Colborne, 160.00:
Clarksburg, 27.00:	Creemore, 73 30	Claremont, 113.40:	Carp, 77 00:
Coldstream, 104 10:	Chesterville, 143 20:	Cannington, 76.00:	Camden East, 101.50:
Caledon, 160 00	Claude, 68.10:	Chesley, 122.50:	Campbellford, 133.30:
Cuffford, 113 90	Coldwater, 199.45:	Carleton Place, 199.60:	Comber, 200.00:
Chatham, 200.00.	Cheltenham, 160 00:	Caledonia, 140 30:	Cornwall, 200 00:
Cobden, 105.80:	Collingwood, 151 20..	Cargill, 160.00:	Cobourg, 200 00:
Crysler, 160 00:	Clinton, 200 00:	Cheapside, 58 40:	Cardinal, 123 00:
Canfield, 160 00:	Cayuga, 135 70:	Copleston, 160 00:	Dorchester, 85 30:
Dutton, 156 00:	Dunnville, 160.00:	Dresden, 160 00:	Dundas, 200.00:
Deseronto, 200.00:	Duart, 160 00:	Drumbo, 157.20:	Don, 68.80:
Douglas, 73.25:	Dalhousie, 75.70.	Dundela, 50.00:	Dromore, 160.00:

EDUCATION.—*Continued.*

PUBLIC LIBRARIES.—*Continued.*

Dungannon, 94.55:	Dundalk, 158 65:	Delhi, 80.00:	Drayton, 197.90:	
Durham, 116 40:	Elora, 115.60:	Essex, 134 30:	Erin, 68.90:	
Easton's Corners, 35.70:	Elmira, 86.00:	Ethel, 79,20:	Embro, 134 20:	
Emsdale, 118.20:	Exeter, 149.40:	Elmwood, 160.00:	Elmvale, 159 70:	
Ennotville, 99.60:	Fonthill, 115 15:	Fenella, 36.00:	Floradale, 59 40:	
Finch, 160 00:	Fenelon Falls, 136 00:	Fordwich, 35 00:	Fort Erie, 67.85:	
Fort Francis, 161.80:	Fergus, 112 50:	Forest, 179 90:	Flesherton, 145 00:	
Freelton, 113.90.	Gananoque, 161.70:	Garden Island, 167.30:	Glencoe, 124.20:	
Guelph, 200.00:	Grantham, 160.00:	Galt, 200.00	Gores Landing, 83 20:	
Georgetown, 177.90:	Glenmorris, 102.20:	Grimsby, 164.30:	Gravenhurst, 34.00:	
Glen Allen, 86 85:	Gorrie, 62.40:	Goderich, 120.00:	Grand Valley, 154.45:	
Hawkesville, 22 00:	Harriston, 131.00:	Haliburton, 71.10:	Haileybury, 29 60:	
Hamilton, 200.00:	Highgate, 160 00:	Hensall, 155.30:	Hagersville, 161.60:	
Huntsville, 200.00:	Holstein, 160 00:	Hillsburg, 160.00:	Holyrood, 76.25.	
Harrow, 81.70:	Hespeler, 191 75:	Hepworth, 32.55:	Harrington, 78.80:	
Hanover, 35.45:	Ingersoll, 165.50:	Inkerman, 26 00:	Inglewood, 49 40:	
Islington, 70 30:	Iroquois, 120.25:	Jarvis, 109.45:	Kingston, 184.00:	
Kingsville. 138.80:	Kinmount, 160.00:	Kemptville, 192.10:	Kincardine, 197.30:	
Kimble, 160.00:	Kinburn, 160 00:	Kars, 78.10:	Kirkfield, 145 75:	
Lancaster, 160.00:	Lakefield, 70.00:	Lucan, 17.20:	Little Current, 68.00:	
Lucknow, 160.00.	Little Britain, 181.70	London, 200.00	Listowel, 199 00:	
Lindsay, 200.00:	Lanark, 178 90:	Leamington, 144.80:	Lake Charles, 103 90:	
Maple, 40.10	Melancthon, 160.00:	Marksville, 160 00:	Madoc, 195.30:	Markham, 60.25:
Morristown, 55 90:	Morrisburg, 95 20:	Merrickville, 150 70:	Midland, 168 60:	
Maxwell & Teversham, 160.00:	Mildmay, 132.40:	Mallorytown, 159 60:	Matilda, 47.70:	
Manilla, 144.40	Munster, 36.70:	Metcalf, 160 00:	Monkton, 160.00:	
Middleville, 160.00:	Millgrove, 25 00:	Milverton, 160.00:	Markdale, 194 20:	
Millbrook, 155.25:	Molesworth, 160 00:	Melbourne, 114.55..	Mississippi, 160 00:	
Mount Brydges, 159.70:	Minden, 106.90	Meaford, 153.20:	Mono Road, 39 45:	
Merriton, 120.90:	Manotick. 49.50:	Mount Albert, 41.70:	Mount Forest, 114.30:	
Milton, 83.10:	Mitchell, 127.20:	Napanee Mills, 125.30:	Nanticoke, 159.50.	
Niagara Falls, 200.00:	Napanee, 200.00:	North Gower, 75.70:	Niagara, 99 40:	
Niagara Falls, S, 70.00:	Newbury, 115.30:	New Hamburg, 191.70:	Newmarket, 98.25:	
Newburg, 115 75:	Norwich, 187 00:	New Dundee, 160.00	North Augusta, 144.50:	
Newington, 155.80:	North Bay, 96.10:	Nairn Centre, 37 25:	New Liskeard, 95.30:	
Norwood, 181.60:	Odessa, 105.75:	Omemee, 40.00:	Oxford Mills, 63.00:	
Ophir, 40.60:	Orono, 62 05:	Otterville, 97.50:	Oakville, 91 50:	
Oshawa, 159.20:	Orangeville, 192 00:	Owen Sound, 146 00:	Oil Springs, 98.50:	
Orillia, 156.40:	Oakwood, 197.75:	Primrose, 36.10:	Pickering, 53 20:	
Plattsville, 42.50:	Parkenham, 17.00:	Port Arthur, 200 00:	Port Perry, 128 00:	
Port Elgin, 122 22:	Peterboro, 200.00:	Paisley, 95.70:	Parkhill, 106 70:	
Port Colborne, 143.50:	Penatanguishene, 172.55:	Pinkerton, 160 00:	Port Rowan, 147.50:	
Port Dover, 193.60:	Port Credit, 65.40:	Port Hope, 146 00.	Palmerston, 164.40:	
Prescott, 200.00:	Pembroke, 198.15:	Preston, 139.80:	Princeton, 160 00:	
Picton, 164.80:	Perth, 119 75:	Port Burwell, 150.40:	Paris, 126.00:	
Port Stanley, 73 20:	Parry Sound, 186.75:	Port Carling, 78.50	Point Edward, 160.00:	
Powassan, 160.00:	Queensville, 49.10:	Rat Portage, 200 00:	Rosemont, 156.25:	
Riversdale, 104.10:	Ridgetown, 161.10:	Romney, 120 80:	Rodney, 160 00:	
Ripley, 93.20:	Ridgeway, 81.40:	Richmond, 88.15:	Russell. 130.00:	
Rosseau. 40 75:	Renfrew, 126.80:	Richmond Hill, 123.50:	Rockwood, 100.25:	
Simcoe, 200 00	Streetsville, 131.60:	Smithville, 160 00:	Smith's Falls, 198.60:	
Seaforth, 162 30:	Shelbourne, 188 40:	Sarnia, 200.00:	Stratford, 200.00:	
Strathroy, 200 00:	Shakespeare, 160.00:	Saltfleet, 160.00:	Schreiber, 92.00:	
Sunderland, 138.60:	Shedden, 82 40..	Sundridge, 77.90:	South River, 96.40:	
Sparta, 63.60:	Springfield, 183 80:	Scotland, 129 35:	Spencerville, 41.60:	
Sprucedale, 126.40:	Sault Ste. Marie, 171.95:	Shallow Lake, 160.00	Stayner, 39.00:	
Scarboro, 160.00:	Stouffville, 126.35:	Southampton, 94.65:	Sunnidale, 132.50:	
St. Thomas, 200 00:	St. George, 132 70:	St. Catharines, 200.00:	St Helens, 100.00:	
St. Marys, 160 25:	Tilsonburg, 154.25:	Toronto Junction, 164 60:	Trout Creek, 160 00:	
Thessalon, 160.00:	Trenton, 160.00:	Tara, 67.50:	Thamesville, 173.40:	
Tiverton, 95 45:	Thedford, 134.10.	Thamesford, 75.10:	Tottenham, 78.90:	
Thornbury, 40.00:	Thorold, 194.00:	Toronto, 200.00:	Thornhill, 19.20:	
Tilbury, 166 25:	Teeswater, 131.55:	Tavistock, 195.15:	Underwood, 98.30:	
Unionville, 79.10:	Uxbridge, 172.80.	Vandorf, 64.30:	Vankleek Hill, 147.40:	
Vars, 127.20:	Victoria, 80.00:	Wyoming. 43.55:	Waterdown, 71.30:	
Wallaceburg, 184.15:	West Lorne, 69.50:	Wales, 160 00:	Watford, 172.55:	
Whitby, 100.15:	White Lake, 41.85:	Weston, 124 95:	Waterloo, 189.50:	
Welland, 154.10:	Woodville, 95.50:	Wingham, 180.10:	Williamstown, 65 20:	
Waterford, 63.05:	Wheatley, 84.25:	Wiarton, 200.00:	Woodstock, 200 00:	
Wroxeter, 140.90:	Walton 160.00:	Westford, 83 00:	Wellesley, 156 70:	
Warkworth, 81.40:	Wardsville, 33.70:	Walkerton, 183.60:	Windsor, 200.00:	
Woodbridge, 75.20:	York, 83.45:	Zephyr, 132.90		$50,344 42
Warwick Bros & Rutter: Printing and binding, 23.73:			L. K. Cameron: Paper, 13.43..	37 16
Riordon Paper Mills: Paper, .73:		G. J. Castle: Copy-holder, 3.00		3 73
Brown Bros: Diary, 2.00:		W. McMaster: Postage stamps, 150.00		152 00

EDUCATION.—*Continued.*

PUBLIC LIBRARIES.—*Continued.*

G. B. Shields: Services as stenographer, 63 00: W. Lemon: Railway guide, .50	$63 50
Dominion Express Co: Charges, 11.25: Jno. Millar: Travelling expenses, 64.55	75 80
S. P. May: Travelling expenses	473 05
Travelling Libraries :-	
Books :—Bain Book & Stationery Co, 12 50: Wm. Briggs, 26.58: T. J. Kelly, 4.00: Copp, Clark Co, 31.53: Col. R. B. Crucy, 1.25: Chandler & Massey, 59.10: Dodd. Mead & Co, 3.60: C. E. Lauriat & Co, 77.21. B. Nicholson, 5.00: C. Robertson & Co, 8.00: F. H. Revell & Co, 3.14: C. Scribners, Sons, 1.85: W. Tyrrell & Co, 141.07	374 83
Rev. Alfred Fitzpatrick: Grant re report on reading camps	100 00
Warwick Bros & Rutter, printing circulars	6 30
Bain Book & Stationery Co: Stationery	1 35
Jas. B. Thomson: Painting and lettering cases, 30 00: T. Eaton Co, book-cases, 18.50	48 50
Aikenhead Hardware: Chest handles, .90: W. McMaster: Postage stamps, 50.00	50 90
J. J. Wadsworth: Postage stamps	2 12
Postage on Catalogues :—	
A. Brown, 1.48: A. Odell, 2.00: Rev. Geo. Grant, 2.14: J. J. Craig, 1.34: W. Irwin, 2.20: J. A. Knight, .88: W. MacIntosh, 2.16: W. W. Ireland, 1.24: G. D. Platt, .65: T. W. Standing, 1.28: W. E. Tilley, 1.76: J. E. Tom, 1.98: P. J. Thompson, 1.96: D. Robb, 1.70: J. H. Smith, 1.50: R. G. Scott, 2.78:	27 05
C. W. Irwin: Brokerage, etc, 1.75: R. H. Macoomb: Duty charges, .35	2 10
Can. Express Co: Charges, 21.15: Dom. Express Co: Charges, 4.40	25 55

ART SCHOOLS, EXAMINATIONS, ETC. ($3,360.87).

Legislative Grants :—	
Ontario Society of Artists, 500.00: School of Art, Kingston, 321.00: School of Art, Toronto, 530.00: School of Art, St. Thomas, 286.00: Hamilton School of Art, Design and Technology, 548.00	2,185.00
Services preparing and examining papers :—	
A. C Casselman, 60.50: Bro. Maxentius, 45.50: R. Gagen, 15.00: W. A. Sherwood, 15.00: C. H. C. Wright, 8.00: T. R. Roseling, 7.00: W. D. Blatchley, 13.00: M. Matthews, 6.00: F. M. Bell-Smith, 6 00: L. B. Stewart, 10.00: M. May, 36.00	222 00
W. Lemon, special services re examination	15 00
Services reading appeals :—A. C. Casselman, 5.00: W. D. Blatchley, 5.00	10 00
Miss Florence Carlyle: Oil painting, "The Tiff"	400 00
C. M. Manley: Oil painting, "The Sun Burns Down"	50 00
Miss C. S. Hagarty: Oil painting, "Sorting Fish"	75 00
C. W. Jefferys: Water color, "Pine Woods"	65 00
Miss S. S. Tully: "Flower Market, Kingston-on-Thames"	35 00
O. P. Staples: Pastel, "Summer"	75.00
C. T. Smith: Services packing exhibits, etc.	7 87
G. L. Rutherford Part services, telephone boy	2 50
Warwick Bros & Rutter: Printing and binding, 64.79: L. K. Cameron: Paper, 105.38	170 17
Riordon Paper Mills: Paper, .20: Copp, Clark Co: Examination papers, 10.00	10 20
W. McMaster: Postage stamps, 25.00: G. T. Railway: Freight charges, .88	25 88
Can. Express Co: Charges, 11.65: Rapid Del. Co: Cartage, .60	12 25

LITERARY AND SCIENTIFIC ($3,500.00)

Canadian Institute,	Legislative grant	$1,500 00
t. Patrick's Literary and Scientific Society,	do	200 00
Literary and Scientific Society, Ottawa,	do	400 00
Scientific Association, Hamilton,	do	400 00
Institut Canadien,	do	400 00
Ottawa Field Naturalists' Club,	do	200 00
Ottawa University Scientific Society,	do	100 00
Toronto Astronomical Society,	do	300 00

HISTORICAL SOCIETIES ($1,100.00)

Ontario Historical Society,	Legislative grant	600 00
Lundy's Lane Historial Society,	do	200 00
Peterborough Historical Society,	do	100 00
Niagara Historical Society,	do	100 00
Wentworth Historical Society,	do	100 00

TECHNICAL EDUCATION ($14,867.01)

Treasurer Ontario Normal College of Domestic Science and Art: grant	1,500 00
Lillian Massey Training School of Household Science: grant	1,200 00
Treasurer Toronto Technical School: grant	1,500 00
Treasurer Collegiate Institute Board, Cobourg, re Manual training classes	100 00

EDUCATION.—*Continued.*

TECHNICAL EDUCATION.—*Continued.*

Secy.-Treas. Collegiate Institute Board, Woodstock, re Manual training classes	$500 00
Secretary Board of Education, Renfrew, do	1,000 00
Treasurer Technical School Board, Brantford: grant	1,000 00
Secy.-Treasurer Board of Education, Kingston, grant re technical classes	1,200 00
Treas. Collegiate Institute Board, Stratford: do do	1,500 00
Secy.-Treas do London: do Domestic Science	100 00
Treas. Public School Board, Stratford: do do	300 00
Y. W. C. Guild, Toronto. do do	50 00
Y. W. C. Ass'n: grant re instruction to Public and Separate School scholars	500 00
Thomas Bengough, services preparing report on Industrial Art, etc	50 00
Ont. Medical College for Women: rent and half cost of furnishing room re Massey School	107 25
do do students fees	80 00
G. M. James, account allowance and expenses re Manual Training School, Ottawa	20 00
Bonus to Manual Training Students:—	
C. N. Clow, 100 00; J. C. Welsh, 100.00; J. N. Moffatt, 100.00; C. C. Arthur, 100.00	
J. C. Hamilton, 100 00; A. McKeown, 100.00; F. A. Jones, 60.00; J. Major, 40.00;	
G. M. James, 40 00	740 00
London Normal School of Domestic Science:—	
Miss Ada Butchart, services as teacher at 25.00 a month, 300.00.	
Supplies:—H. Ranahan, 49.87; C. H. Bayley, 8.62; J. C. Woods, 30.23	388 22
Summer Schools for Teachers:—	
Jno. Dearness, services as Principal, 150.00;	
A. C. Casselman, services as Drawing Master, 125 00;	
A. T Cringan, services as Music Instructor, 125.00;	
Mrs. Jean Joy, services as teacher Domestic Science, 125.00;	
Mrs. Bella Simpson, services as attendant, 10 00;	
Mrs Wilkinson, services as teacher cardboard work, 68.00;	
Chandler & Massey, chemicals, 12.48; A. F. Barker, groceries, etc., 14.30;	
City Dairy Co, milk, 2.41;	
Macdonald Manual Training School, refund for goods supplied, 14.82;	
Toilet Laundry Co., washing towels, 76c.; Canadian Express Co., charges, 25c.;	
A. H. Leake, travelling expenses, 25 40.	673 42
Ottawa Normal School, Domestic Science Department.—	
The C. Ross Co., supplies	24 07
Mrs. A. Hoodless, services re demonstration lectures in Domestic Science	660 00
do travelling expenses, 153 42; postage, telegrams, etc	162 47
Miss Ida Hunter, services, 20.00; travelling expenses, 13 55	33 55
A. H. Leake, travelling expenses, 302.16; telegrams, etc., 1 70	303 80
do travelling expenses addressing school boards and teachers	40 81
Bessie Livingstone, travelling expenses, 19 70; E. Dennis, services as stenographer, 34.00	53 70
G. L. Rutherford, part services as telephone boy	5 00
T. Eaton Co., rug for Miss Curzon's office	6 25
Chas. Rogers & Sons Co., desk and bookcase for Miss Curzon's office	23 00
Apparatus:—Map and School Supply Co., 147 85; Eimer & Amend, 185.60;	
Ontario Rubber Co., 3 60; Worth & Martin, 2.00	339 05
Evans & Sons, chemicals, 72 62; Copp-Clark Co., books, 49.36	121 98
G. N. Morang & Co., books, 5 61; Vannevar & Co, books, 6.00	11 61
Nony & Co, report Congress on Technical Education, Paris Exposition	2 49
Warwick Bros. & Rutter, printing and binding	1 65
Salvation Army Printing Dept., printing	1 25
Wm. Briggs, printing and binding 4,000 copies commencement exercises, 70.00;	
binding book, 60c	70 60
L. C. Cameron, paper, 7.94, stationery, 25.05; Riordon Paper Mills, paper, 58.80	91 79
Wm. McMaster, postage stamps	50 00
Creelman Bros. Typewriter Co., rent of typewriter	4 00
A. C. Turnbull, cooking charts, 9.00; Orange, Judd & Co., electros, 10.00	19 00
Alexander Engraving Co., half-tone cuts, 5.45; C. W. Irwin, brokerage, etc., 17.94	23 39
Toronto Railway Co., cartickets, 2.00; Map and School Supply Co., freight storage, etc., 10.53	12 53
Dom. Express Co., charges, 5.66; Can. Express Co., charges, 6.72	12 38
Can. Transfer Co., cartage	75
Advertising:—*Canadian Annual*, 50.00; *Can. Educational Monthly*, 5.00;	
Trinity University *Year Book*, 25.00; Queen's University *Journal*, 50.00;	
Canadian Year Book, 30.00; *Star* Printing and Publishing Co., 15 00;	
Mail and Empire Publishing Co., 30.00; *Globe* Printing and Publishing Co., 60.00;	
Can. Churchman, 18.00	283 00

MISCELLANEOUS ($16,164.20).

L. Salter: Twelve months' salary as Matron University (Ladies' department)	550 00
J. E. Berkeley Smith: Grant to University	7,000 00
do do Agricultural examinations, B.S.A	425 00
do Collections on University land for 1901 (60 Vic., cap. 59, sec. 4)	2,874 87
Board Trustees High Schools and Collegiate Institutes—Grant for military instruction:—	
Barrie, 50 00; Brantford, 50.00; Chatham, 50 00; Collingwood, 50 00;	
Dundas, 50.00; Guelph, 50.00; Goderich, 100.00; Galt, 50.00;	

EDUCATION.—*Continued.*

MISCELLANEOUS.—*Continued.*

Hamilton, 50 00; London, 150 00; Lindsay, 100.00; Mt. Forest, 50.00; Morrisburg, 50.00; Markham, 50.00; Norwood, 50.00; Niagara Falls, 50.00; Orillia, 50.00; Owen Sound, 50.00; Peterboro, 50.00; Petrolea, 50.00; Seaforth, 50.00; Strathroy, 50 00; St. Thomas, 100 00; St. Catharines, 50.00; Toronto (Jarvis st.), 50 00; Toronto (Jamieson ave.), 50 00; Toronto (Harbord), 50.00; Uxbridge, 50.00; Woodstock, 50 00; Vankleek Hill, 50.00 ..... $1,750 00

Warwick Bro's & Rutter: Printing and binding :—
Education report, 180.30; School Act forms, 80.80; Archæological report, 138.90; Text book committee report, 29 85; Public school registers, 825.00; Documentary History, 635.30; University Auditors' report, 1.80.... ..... 1,891 95

H. H. Langton: Printing historical papers, 600.00; L. K. Cameron Paper, 337.00 ..... 937 00

L. K. Cameron: Paper for Archæological report, 226.41; Riordon Paper Mills: Paper, 15.72 242 13

R. G. McLean: 500 copies Canada my Home 50 00

H. H. Langton: 300 copies Review of Historical Publications 150 00

Toronto Lithograph Co.: Souvenir folders "Flag for me" for Pub. School children..... 264 02

Edith Kempthorne: Typewriting re Documentary history..... 50

Postage on School Acts to Trustees :—
H. Reazin, 2.50; W. J. Summerby, 3.00; T. A. Craig, 2 37; J. H. Ball, 2 28; J. J. Craig, 1.95; W. W. Ireland, 1.92; W. Atkin, 3.15; A. Campbell, 2.46; C. A. Barnes, 2.88; H. H. Burgess, 2.10; Isaac Day, 3.40; G. D. Platt, 72c 28 73

SUPERANNUATED TEACHERS, ($64,244.92).

Adam Adams, 80.00; Jas. Allan, 122.00; A. Allison, 131.00; Jane Anderson, 237 50; Wm. Anderson, 206.00; A. Andrews, 122.00; Thos. Armstrong, 152 00; J. W. Armstrong, 171.00; C. H. Ashdown, 203.00; Jno. Anderson, 151.50; D. S. Allen, 153.00; Ed. Anderson, 234 00; Arch. Andrew, 158.00; J. W. Acres, 276 00; L. Aylsworth, 179.00; G. H. Ash, 181.50; C. F. Adair, 158.00; W. T. Amos, 199.00; R. H Banks, 91.00; M. J. Bates, 87.00; W. H. Beatty, 98.00; L. C. Bell, 215.50; A. Best, Sr., 86.00; W. R. Bigg, 259.00; P. W. Biggar, 86 00; R Blackwood, 132.50; Wm. Boal, 62.50; E. Bowes, 125.00; J. G. Boyd, 107.00; Jno. Bodaly, 83 00; Wm. Bradley, 101.00; C. L. Brown, 86 00; Jno. Bruman, 65.50; Amos. Bridge, 200.50; C. E. Busch, 200.00; J. O. Bruechner, 176 00; B. M. Brisbin, 145.50; Jas. Bowerman, 181.50; W. J. Black, 168.50; H. Bell, 122.00; Jas. Birch, 261.50; H. S. Bulmer, 173.50; G. Bigelow, 184.00; M Banks, 172.00; W. E. Bradley, 157.00; T. Blackman, 232.00; Jno. Brebner, 339.00; A. Barber, 192.00; J. H. Bradley, 127 25; P. Cameron, 71.00; S. B. Cameron, 206.00; H. Cameron, 66 50; Jos. Cahill, 152.00; G. Carpenter, 56 00; M. Capsey, 147.00; J. C. Campbell, 203.50; W. Campbell, 125 50; W. Carroll, 255.00; Thos. Chaplin, 98 00; P. Clarke, 153.00; J. Clarke, 47.00; V. A. Coleman, 143.00; C. B. Colhoun, 128 00; J. Collins, 116.00; C. Costello, 128 00; H. Courtland, 235.90; P. Courtney, 98.00; Jno. Conn, 161.50; Jas. Cook, 100.50; R. Crisp, 68.00; H. Cullen, 134 00; Wm. Curry, 92 00; T. Chislett, 136.50; Jno. Campbell, 265.00; D. Croll, 217.00; R. Coates, 178.00; C. Chaisegreen, 185.00; M. Currie, 120.00; A. Carley, 185.00; T. Caswell, 255.00; P. Crawford, 205 50; J. Carnochan, 269.00; S. G. Cook, 246.50; J. Cundall, 200 00; C. Carter, 50.00; A. Campbell, 212.50; B. Daly, 227.00; J. Dalgish, 95.00; S. Derby, 128.00; R. Deachman, 107.00; J. Drummond, 200 00; G. W. Dulmage, 128.00; J. Duncan, 295.00; J. Dochstader, 158.00; A. Duff, 136.00; A. W. Dimsdale, 113.00; R. De Cow, 327.00; W. Davidson, 234.00; F. Davis, 246.00; W. Eden, 109 00; F. L. Ellis, 134 00; J. C. Elliott, 293.00; Jas. Elliott, 134 00; Mrs. C. Elliott, 68.00; Wm. Elmslie, 109 00; G. T. Evans, 244.50; R. Eward, 128.00; E. T. Evans, 143.00; T. Eckardt, 194.50; J. Ferguson, 176 00; R. Ferguson, 176 00; J. A. Fetterley, 80.00; W. Fleming, 118.50; D. Flavelle, 77.00; Jas. Forest, 183 00; A. Fraser, 153.50; G. French, 151.50; R. Fletcher, 143.00; A. B. Ferrier, 206.00; S. Flynn, 266.00; Jas J. Fallon, 68 00; Jas. Fulton, 185.00; L. S. Froats, 214.00; A. Gamble, 98.00; G. Garrett, 215 50; M. Gill, 192.50; R. N. Gibbs, 256.50; E. J. Glenday, 176.00; S. Goodbody, 206.00; W. Gorman, 155.00; A. A. Gould, 206.00; A. Goulet, 116.00; H. Graham, 155.00; T. C. Graham, 65.00; P. H. Green, 174.50; T. Grenier, 176.00; R. Grandy, 115 00; W. Gray, 212.00; T. Gregory, 162 00; R. Grant, 154.00; A. B. Gilbert, 151.50; T. Gilbert, 152.00; Jas. Gibson, 87.00; W. H. Godwin, 253.50; M. J. Haight, 131.00; J. Hales, 139 00; S. M. Hamilton, 153.50; R. E. Hamilton, 78 00; Robt Hamilton, 172.00; E. B. Harrison, 252.50; M Harvey, 119.00; D. Hawkinson, 101.00; E. Haywood, 206.00; W. Heavener, 152.00; H. C. Henry, 146.00; P. D. Henry, 98.00; E. T. Hewson, 142.00; A. Hickie, 223.50; W. B. Hobbs, 45.00; N. L. Holmes, 164 00; E. Hopkins, 147 50; S. Hovenden, 158.00; J. Hughes, 162.50; F. S. Hunt, 168 00; S. M. Hamilton, 262 00; T. Hammond, 129 00; J. Henstridge, 229 00; J. H. Hobbs, 119 00; J. B. Hewitt, 160 50; A. T. Horne, 122 00; G. Henderson, 224 00; W. Hindson, 220 50; A. C. Herrick, 176 00; A. G. Henderson, 139 50; A. J. Hewson, 160 50; Jno. Ireland, 171 00; Irene Ireland, 50 00; B. A. Irvine, 128 00; B. Jackson, 153 50; N. Jarvis, 205 00; E. B. Jennison, 187 50; R. A. Johnson, 86 00; J. E. Johnson, 143 00; D. J. Johnston, 182 00; Geo. W. Johnston, 213 00; Jas. Kearney, 56 00; D. D. Keenan, 185 00; J. Kelly, 167 50; A. Kennedy, 176 00; E. E. Kennedy, 241 00; A. E. Kennedy, 92 00; C. Kennedy, 107 00; Wm. Kessack, 192 00; W. M. Keerman, 122 50; J. Kyle, 147 50; A. Kennedy, 199 00; A. H. Kilman, 149 50; J. Keatley, 90 50;

EDUCATION.—*Concluded.*

SUPERANNUATED TEACHERS.—*Continued.*

R. H. Knowles, 203 00; A. Lemery, 158 00; Wm Landon, 62 00;
Wm. Laughlin, 175 00; A. H. Lee, 116 00; S. H. Leighton, 142 00;
A. L. Leitch, 130 00; G. Lindsay, 152 50; S. M. Logan, 119 00; H. Lucas, 179 00;
S. Lyons, 173 00; P. F. Le Riche, 128 00; J. Langdon, 217 00;
M. A. Levergood, 122 00; F. Lee, 92 00; C. H Lusk, 272 50; W. Leith, 164 00;
V. L. Mackie, 74 00; Jas. Magill, 176 00; Jas. Maxwell, 107 00;
C. F. H. Metzdorf, 104 00; J Mills, 80 00; Jno. Mitchell, 143 50;
J. M. Monkman, 157 00; Wm. Monds, 148 00; A. Morton, 234 00;
Eliz. Murray, 122 00; Jas. Marshall, 152 00; W H. Minchin, 219 00;
J. Matthews, 100 00; R. Maynard, 262 00; G. Middleton, 152 50; J. B. Morton, 227 50;
S. Martin, 188 50; W. Mathewson. 146 00; F. H. Moyer, 218 00; M. McAlpine, 146 00;
C. McCartney, 104 00; M. McAuliffe, 134 00; A. B. McBrien, 78 50;
J. W. McBain, 116 00; G. D. McBride, 95 00; Jno. McClinton, 212 00;
D. McColl (Campbellford), 101 00; R. R. McDonald, 119 00;
D. McColl (Woodville), 129 50; Jas. McDonell, 95 00; T. Q. McGoey, 159 00;
E. McGeehan, 140 00; J. McGrath, 150 50; D. McFarlane, 182 00; G. A. McIntyre, 181 50;
Jno. McKay, 164 00; T. McKerrall, 153 50; C. McKercher, 124 50;
D. C. McKinnon, 167 00; A. J. McKinnon, 13001; P. McLaren, 196 00;
Jno. McLean (Galt), 208 50; D. McLeay, 169 00; W. A. McLinn, 186 00;
Jas. McLean, 89 50; D. N. McLean, 116 00; R. McMillan, 77 00; M. A. McMahon, 95 00;
J. McNamara, 98 00; H. McPhee, 202 00; J. R. McNeillie, 170 00; Alex. McPhee, 179 00;
M. McPhail, 65 00; Mrs. I. McQueen, 92 00; R. McQueen, 220 00; S. McRae, 130 00;
Jno. McLean (Hamilton), 66 00; D. McAulay, 173 00; R. C. McGregor, 127 50;
G. McKinnell, 176 00; C. McPherson, 266 50; A. McGregor, 167 00;
W. C McEachern, 229 00; W C. McColl, 182 00; D. McDonald, 178 00;
W. McKeown, 262 00; L. L. McFaul, 209 50; R. McEwan, 210 00;
N. K. Nesbitt. 200 00; W. J. Nicholson, 41 00; R. Nixon (Est), 89 00;
Wm. Noble, 131 00; A. Nolan, 164 00; T. Norton, 188 50; P. O'Brien, 111 00;
J. O'Leary, 221 00; J. O'Meara, 110 00; A. C. Osborne, 193 50; J. O'Sullivan, 158 00;
D. O'Connor, 98 00; A. Ouelette, 149 00; J. Park, 231 50; G. F. B. Payne, 170 00;
J. P. Pegg, 76 50; Geo. Peters, 129 00; Jno. Phillips, 190 00; E. W. Pillar, 189 00;
W. Plunkett, 203 00; W. Poole, 182 00; C. Prouty, 164 00; S. T. Perry, 189 50;
W. W. Pegg, 218 00; T. O. Page, 218 50; M. A. Pomeroy (Est), 247 00;
F. C. Powell, 356 75; A. Patterson, 167 50; A. Quinn, 156 50; J. K. Redmond, 140 50;
M. Y. Richardson, 183 50; D. Robertson, 207 00; C. M. Robertson, 166 00;
D. Robertson, 174 50; Jno. Robb, 204 00; Rev. R. Rooney, 134 00; D. Rose, 104 00;
E. Roswar, 128 00; A. T. Rothwell, 125 00; G. Round, 176 50; J. C. Reid, 156 00;
M. L. Regan, 95 00; H. H. Read, 200 50; W. P Robertson, 258 00; E. R. Regan, 185 00;
R. B. Reynolds, 197 00; B. Rothwell (Listowel), 287 50; J. G. Rose, 55 50;
W. K. Reid, 244 00; D. S. F. Ritchie, 252 50; B. Rothwell (Chatham), 240 50;
W. Rannie, 220 00; Jas. Scott, 142 50; P. Shaw, 194 00; B. Shereff, 193 00;
J. Sheehan, 122 50; E Shoemaker, 155 00; C. Short, 164 50; W. Sinclair, 218 50;
A. Sinclair, 187 00; J. Sinclair, 134 00; E. M. Simpson, 149 00; W. Skelton, 83 00;
Jas. Smith, 213 00; A. Stewart, 74 00; W. Stiver, 94 00; A. Slaven, 152 00;
D. Sullivan, 131 00; C. F. Sullivan, 66 00; W. H. Scott, 181 50; G. W. Sine, 155 50;
W Styles, 290 00; S. Spillett, 173 00; J. J. Settell, 180 50; P. M. Sutherland, 107 00;
G. Sharman, 232 00; R Sanderson, 213 00; R. P. Shanks, 206 00; R. Tasker, 160 50;
M. B. Thorn, 80 00; Wm. Thornhill, 116 00; Alex Todd, 150 00;
Rev R. Torrance, 255 00; W. Tovell, 139 50; Wm. Tyndall, 161 00;
J. Tomlinson, 212 00; C. J. Taylor, 122 00; C. Treadgold, 98 00; R. Unsworth, 173 00;
S. Vandewater, 112 50; J. Varcoe, 128 00; H. Vanderburgh, 157 50;
Jos. Wallace, 83 00; J. W Walker, 83 00; W. Warburton, 215 00; J. G. Ward, 164 50;
L. Warburton, 245 50; S. Washburn, 107 00; T. Watson, 194 00; T. Waugh, 146 00;
Jno Weighill, 185 00; H. L. Whitcomb, 170 00; W. A. Whitney, 252 00;
R. H. Wickham, 194 00; D. L. Williams, 188 50; A. C. Winterbottom, 209 00;
J. Wright, 151 00; M N. Wright, 175 00; Jno. Wood, 232 00; S. B. Westervelt, 226 00;
M. Watts, 128 00; A. Wilson, 92 00; E. C. Wells, 262 00; A. W. Wright, 155 50;
J. F Yates, 176 00; R. W. Young, 165 00; L. G. Young, 74 00 .... $64,178 00

Dr. A McPhedran, medical examination of applicants	52 00
Warwick Bros. & Rutter, printing and binding	12 50
L. K. Cameron, paper	2 42
Total Education	$804,909 15

PUBLIC INSTITUTIONS MAINTENANCE.

ASYLUM FOR INSANE, TORONTO.

Salaries ($33,949.22)

Daniel Clark, M.D.	Twelve months'	salary as	Medical Superintendent	$2,000 00
W. K. Ross, M.D.	do		Assistant do	1,100 00
R. W. Bell, M.D.	Five and ½	do	Assistant Physician	389 56
J. C. Mitchell, M.D.	Six and ½	do	do	541 64
Wm. Tracy	Twelve	do	Bursar (including rent allowance)	1,800 00
F. O. Loft		do	Bursar's Clerk (including board allowance)	950 00
Mark Keilty		do	Storekeeper	1,000 00
B. Winnifrith		do	Steward	750 00
Jas. Barrie		do	Trades Instructor	550 00
Alex. MacKenzie		do	Tailor	550 00
Robt. McCammon		do	Baker	450 00
Thos. Hughes		do	Carpenter	600 00
Jas. Anthony		do	do	550 00
Robt. Bruce		do	Painter	575 00
Jno. Daly		do	Bricklayer and Mason	625 00
Peter Trowern	Ten	do	Engineer	700 00
Jas. E. Noble	Eight	do	do	529 12
C. F. Arnott	Twelve	do	Gardener (Farm)	532 00
W. P. Strickland		do	Gardener (Flower) (board)	475 00
Jno. Torpey	Two	do	Teamster	40 00
Geo. Chrouse	One and ½	do	do	32 00
Jas. Young	Twelve	do	Assistant Engineer	378 48
F. J. Dundas	Six	do	Engine Driver	177 74
W. J. Dundas	Seven	do	Attendant and Messenger	147 00
Stokers (3)	Twelve	do		665 20
Jas. Burrow		do	Porter	276 00
Night Watchmen (4)		do		1,010 25
Richard McCreary		do	Supervisor and Nurse	336 00
Edward McGuire		do	Chief Attendant	400 00
Male Supervisors (8)		do		2,395 76
Male Attendants (19)		do		4,533 01
Eliza Corley		do	Matron	500 00
Mary McKinley		do	Assistant Matron	300 00
K. P. McMillan		do	Trained Nurse	240 00
M. J. Howie		do	Musical Directress	240 00
Eva M. Cuthbertson		do	Portress and Stenographer	175 00
Annie McWilliam		do	Seamstress	144 00
Night Nurses (4)		do		600 00
Female Supervisors (8)		do		1,392 00
Nurses (20)		do		3,021 21
Laundresses (7)		do		1,000 07
Cooks (6)		do		814 81
Housemaids (4)		do		463 37

Expenses ($67,744.30)

Aikenhead Hardware: Iron, hardware, etc, 14.13; eye screws, 12 doz, 14.40; nails, 5 kgs, 13.45 — 41 98

Atlantic Refining Co'y: Oil, 10 gals. 5.00; *Alienist and Neurologist*: Subscription, 5.00 — 10 00

Am Medico-Psychological Assn: Annual dues, 5.00; *Am Journal of Insanity*: Sub'n, 5.00 — 10 00

Arnott, C. F: Seed potatoes, 4½ bus. 6.00; berry bushes, 20 00; strawberry plants, 3 00 — 29 00

Brown, E. & Co'y: Tea, 1,406 lbs, 351.50; starch, 80 lbs, 5 60; macaroni, 50 lbs, 4 76; pickles, 6 doz, 13 50; prunes, 500 lbs. 42.50; tomatoes, 10 doz cans, 9 50; sugar, 1,524 lbs. 59.13; pot barley. 2 bbls, 9.00; rice, 455 lbs, 15.93; sundries. 7.47 — 518 89

Burns, P. & Co: Bal 1901 coal contract—soft coal, 70 tons 1,150 lbs at 4.40, 310.53; 1902 contract—soft coal, 503 tons 1,660 lbs at 4 85, 2,443 58 — 2,754 11

Beardmore & Co: Shoe leather, 1,775 lbs, 427 42; belting, 9.09; thread, nails, tacks, etc, 38.77 — 475 28

Bigley, R: Castings, 82 lbs, 3 20; repairs, etc, 17.15 — 25 35

Brown Bros Co: Shrubs, trees, etc, 20 80; Byron, R. J: Tow, 542 lbs, 18.97 — 39 77

Bryce, A. & Co: Lumber, 4,200 ft. 175.25; cartage, 2.00 — 177 25

Barton, E: Plums, 35 baskets, 15.75; Butler, Jas: Yarn, 100 lbs, 50.00 — 65 75

Bain Book and Stat'y Co: Subs, magazines, etc, 43.00; Bell Tel Co: Repairs, 24.54 — 67 54

Bentley, Henry: Hay, 2,450 lbs, 17.76; Bursar: To pay sundries, 12 07 — 29 83

Cressman, A. W: Tabling, 216 yds, 100.28; cotton, 817 yds, 77 66; towels, 2 doz, 24 00; sundries, 85c; flannelette, 352 yds, 29.96; lining, 120 yds, 14 48; linen, 306 yds, 42.81; corsets, 1½ doz, 12.00 — 302 04

Central Prison Industries: Tweed, 552 yds, 276.00; repairs, 39.00; mangels, 24¼ tons, 108.11; bed, 20.00 — 443 11

Connal, Peter & Son: Sugar, 1,524 lbs, 60.66; currants, 499 lbs, 32.44; salt, 1 bbl, 2.75; pepper, 125 lbs, 27.50; mustard, 50 lbs, 12 50; lobster, 4 doz cans, 12 00; salmon, 4 doz cans, 6 40; rice, 500 lbs, 17.50; chocolate, 10 lbs. 3 50; cream tartar, 35 lbs, 8.75; macaroni, 50 lbs, 5.00; cocoanut, 20 lbs, 4.40; tea, 760 lbs, 190.00 — 383 40

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, TORONTO.—*Continued.*

EXPENSES.—*Continued.*

Carolan, Jas: Wheat, 33 bush, 22.98; bran, 24 tons 764 lbs, 396.66 ..... $419 64
Chandler & Massey: Surgical appliances, 80.07; Canicula Chemical Co: Lamps, 26.00.. 106 07
Can Rubber Co: Packing, 47 lbs, 23.94; C. W. Coleman: Repairing clock, 2.00 ..... 25 94
Consumers' Gas Co: Gas, 3,310.83; coke, 36 00 ..... 3,346 83
Subscriptions: *Canada Lancet*, 2.00; *CanChurchman*, 1.50; *Catholic Register*, 1.50 5 00
Carbon Studio: Photo, 5.00; C.P. Railway Co: Freight charges, 55.92 ..... 60 92
Carberry Jno: Hay, 3 tons 795 lbs, 42.39; Crossley, A: Services temporary clerk, 112 00 154 39
Clark, Daniel, M.D: Balance *re* table allowance, 146.64; admissions to circus, 25.00; allowance *re* furniture and furnishings, 61.50; expenses recovering eloper, 17.60 .. . 250 74
Cameron, L. K: Stationery 148 50
Doyle, The M. Fish Co: Fish, 14,900 lbs, 1,192.00; herrings, 2 bbls, 6.00..... 1,198 00
Dineen, W. & D. Co.: Straw hats, 10 doz, 17.50; sundries, 3.00 ..... 20 50
Duck, R. F: Hay, 39 tons 1,210 lbs, 477.38; Duncan, Jno: Gas burners, 200, 34.00..... 511 38
Dickson, A. G: Linen towels, 20 doz, 28.75; crash, 112 yds, 11.20; linen, 136 yds, 32.58; table linen, 107 yds, 53.38 ..... 125 91
Dominion Radiator Co Globe valves 49.23; castings, 49.67; iron pipe, 55.08..... 153 98
Dover Vinegar Works: Vinegar, 250 gals, 57.62; barrels, 5 57..... 63 19
Eby, Blain Co'y: Sugar, 48,215 lbs, 1,845.73; tea, 1,702 lbs, 425.50; rice, 1,500 lbs, 52.50; biscuits, 161 lbs, 35 78; corn meal, 5 bbls, 21.50; salt, 14 bbls. 23.20; raisins, 305 lbs, 28.48; extracts, 12 doz, 48.00; codfish, 1,000 lbs, 64.25; assorted peel, 133 lbs, 19.43; mustard, 66 jars, 24.85; currants, 210 lbs, 14 70; starch, 1,435 lbs, 85.79; syrup, 3,648 lbs, 132 25; blueing, 100 lbs. 14.00; prunes, 1,609 lbs, 121.43; corn starch, 160 lbs, 11.60; tapioca, 282 lbs, 11,28; borax, 194 lbs, 12 15; chocolate, 36 lbs, 12.60; molasses, 27.25; pickles, 3 doz, 6.70; salmon, 8 doz cans, 12.40; macaroni, 50 lbs, 5.88; figs, 10 lbs, 1.17; sago, 124 lbs, 4.96; syrup, 620 lbs, 19.38; soap, 3.02; spices, 20 lbs, 5.50; gelatine, 5 doz, 7.50; nutmegs, 5 lbs, 4.00; sauce, 2 doz, 13.50; pearline, 15.60; blacking, 5 00; sal. soda, 9,000 lbs, 81.01; paper bags, 11.00; sapolio, 6.00; candy, 200 lbs, 24.00; tomatoes, 10 doz cans, 9.50; tobacco, 16 lbs, 10.40; vinegar, 210 gals, 52.53; barrels, 5, 10.00; sundries, 9.14 3,350 46
Eckardt, H. P. & Co: Salt, 10 bbls, 12.50; pot barley, 2.25..... 14 75
Edmison, H. H: Drugs and chemicals 49 75
Fair, Robt. & Co: Rugs, 8 doz, 72.00; shirting, 1,129 yds, 127.07; napkins, 10 doz, 20.00; socks, 2 doz, 3.04; mitts, 2 doz, 6.75; cashmere, 50 yds, 22.73; towelling, 458 yds, 41.25; muslin, 60 yds, 7.50; sateen, 139 yds, 24.98; spools, 10 gro, 54.00; batting, 6 bales, 36 00; cotton, 202 yds, 18.18; print, 537 yds, 53 67; needles, 5.00; cheese cloth, 13.36 505 53
Fraser, G. B: Linen tabling, 139 yds, 62 66, cotton, 346 yds, 34.63; glass cloth, 380 yds, 30.38; 127 67
Flett, Lowndes & Co: Assorted buttons, 50 gro, 58.45; cotton thread, 10 gro, 54.00; linen thread, 16 lbs. 34.27; needles, 2,000, 2.00; lining, 27 yds, 18.22; canvas, 150 yds, 21.00; silesia, 93 yds, 16.39; holland, 47 yds, 7.52; scarlet cloth, 1¼ yds, 3.75; sundries, 10.54..... 226 14
Fleischmann & Co: Yeast, 315 lbs, 94.50; Fairweather, J.W.T. & Co: Felt hats, 7 doz, 57.75 152 25
Gowans, Kent & Co Plates, 70 doz, 45.78; jugs, 11 doz, 29.98; basins, 2 doz, 7.22; bakers, 10 doz, 6.65; bowls, 77 doz, 47.19; sundries, 29.57; globes, 27 doz, 39 08; teas, 25 doz, 14.54; tumblers, 36 doz, 14 13; fruit jars, 9 gro, 72.25; chambers, 2 doz, 6.08; cups, 25 doz, 11.25; covered dishes, 1 doz, 4.80 ..... 328 52
Gutta Percha & Rubber M'f'g Co: Fire hose, 100 ft, 26.50; sun hose, 300 ft, 29 00; sundries, 8.05..... 63 55
Grant, Hamilton Oil Co: Raw oil, 47 gals, 36.86; benzine, 45 gals, 7.51 ..... 44 37
Gadsby & McCann: Straw, 25½ tons, 157.98; corn meal, 3 tons 788 lbs, 89.79; barley, 52 bush, 29 90; hay, 2½ tons, 27.83; pea meal, 6¾ tons, 191.93; oats, 70 bush, 31.33; wheat, 20 bush, 14.00; oat chop, 14 tons, 725 lbs, 340.85; bran, 12 tons 645 lbs, 220.59 ..... 1,104 20
Gooderham, G: Hay, 1 ton 1,420 lbs, 15.39; Gourlay, Winter & Leeming: Tun'g piano, 5.25 20 64
Graham, A: Rolled oats contract, 125 bbls at 5.75 ..... 718 75
Gracie, Jno: Wages as temporary baker, 169.00; Gripton, C: Indelible ink, 2 qts, 17.60 186 60
G. T. Railway Co: Charges, 12.86; *Globe* Printing Co: Subs, 10.00..... 22 86
Hall, Richard & Son: Cotton, 1,229 yds, 92.16; print, 848 yds, 84.89; carpet, 30 yds, 27.00; flannelette, 119 yds, 8.37; denim, 218 yds, 27.22 ..... 239 64
Hamilton, Peter Co: Cultivator, 30.00; Hobbs Hardware Co: Sanitary fluid, 44 gals, 59.40 89 40
Howland, H. S. Sons Co: Cups, saucers and plates, 18 doz, 18.15; snow shovels, 2 doz, 6.00; knives and forks, 10 sets, 40.00; spoons, 10 doz, 36 00; iron hardware, etc. 35.71 135 86
Henry & Co: Tea, 450 lbs, 112.50; rice, 1000 lbs, 35.00; tapioca, 200 lbs, 8.00; molasses, 22 gals, 6.98; pearline, 5 boxes, 19.50; corn starch, 160 lbs, 11.20; pepper, 30 lbs, 5.40; cod fish, 200 lbs, 13 00; cheese, 450 lbs, 47.25; pekoe, 525 lbs, 131.25..... 390 08
Hunter, Moses: Straw, 8 tons 270 lbs, 51.67; chopped oats, 6 tons 1870 lbs, 180.22; bran, 2,050 lbs, 15.88 pea meal, 2 tons, 57.40; hay 5 tons 750 lbs, 59.13; oats, 177 bush, 73.66; barley, 20 bush, 9 60; wheat, 22 bush, 14.64. 462 20
Hunter, R: Purchase of meat, 12,420.46; Hayhoe, R. B. & Co.: Tea, 400 lbs, 100.00; 12,520 46
Hyatt, A: Berries, 278.55; peaches and pears, 118.34 ..... 396 89
Harris Abattoir Co: Pork, 14,554 lbs 1,236.60; Hartz, The J. F. Co: Appliances, 38.11; 1,274 71
Hudgin, A: Postage stamps, 109.50; Hurd, H. E., V.S: Medicines, etc., 15.75 ..... 125 25

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, TORONTO.—*Continued.*

EXPENSES.—*Continued.*

Heintzman & Co: Rent of piano, 19.00 ; repairs, 3.00 ..... $22 00
Hamilton, W. H: Sugar, 1,502 lbs, 59.78 ; syrup, 666 lbs, 24.14 ; starch, 120 lbs, 8.40 ; cocoanut, 20 lbs, 4.40 ; cocoa, 14 lbs, 5.60 ; cod fish, 300 lbs, 19 50 ; raisins, 140 lbs, 9.80 ..... 131 62
Inglis, Jno. & Sons: Castings, repairs, etc., 19.47 ; grate bars, 2,367 lbs, 82.85 ; boiler repairs, 68.61 ..... 170 93
Johnson, D: Brass washers, 12 doz, 7.20 ; Johnson, Wm: Horseshoeing, 40.07 ; 47 27
Johnson, John: Hay, 1 ton 1260 lbs 14 67
Kingan Hardware Co: Glass, 13.95 ; iron, hardware, etc, 15.95 ; wire nails, 6 kegs, 15.45 ; glue, 50 lbs, 9.00 ; tacks, 5.50 ; clothes line, 1,000 feet, 5.25 ; white lead, 1,000 lbs, 56.99 ; locks, 4 00 ..... 126 09
Kay, Jno., Son & Co: Carpet, 16½ yds, 16 38 ; sundries, 1.81 ..... 18 19
Kent, Ambrose & Sons: Spectacles, 5 doz, 15.00 ; cases, 1 grs, 5.50 ..... 20 50
Knickerbocker Ice Co: Ice, 399 tons, 355.41 ; Long, Fred: Wages, temp. baker, 39.00 ; 394 41
Lalor, The F. R. Canning Co: Peas, 10 doz cans, 9.00 ; beans, 10 doz cans, 7.50 ; corn, 40 doz cans, 32.00 ..... 48 50
Lytle, T. A. & Co: Mixed pickles, 17 doz, 24.74 ; Lott, B. O: Honey, 1,214 lbs, 121.40 ; 146 14
Lawrence, J. W: Drugs and chemicals, 266 39 ; Maddocks Bros., harness repairs, 23.00 ; 289 39
Mason, E. F. & Co: Sago, 750 lbs, 30.00 ; tapioca, 769 lbs, 30.76 ; rice, 1,502 lbs, 52.57 ; tea, 516 lbs, 129 00 ; sugar, 1,541 lbs, 61.33 ..... 303 66
Morrison, The Jas. Brass Mfg. Co: Gas fixtures, 9.66 ; castings, 5.07 ..... 14 73
Murray, W. A. & Co Sheeting, 466 yds, 74 52 ; sundries, 27.83 ; duck, 61 yds, 7.93 ; denim, 20 yds, 7.00 ; italian, 9 yds, 5.85 ; flannelette, 540 yds, 55.46 ; cotton, 132 yds, 792 ; cheese cloth, 105 yds, 4.76 ; flannel, 48 yds, 11.04 ; scrim, 306 yds, 62.02 ; silkoline, 76 yds, 10.26 ; curtain net, 35 yds, 4.38 ; fringe, 70 yds, 4 20 ; linen, 30 yds, 13.73 ; felt, 21 yds, 13.81 ..... 310 71
Miles, A. W: Interments, 16.00 ; May, Samuel & Co: Bowls, 2 sets, 21.60 ..... 37 60
Matthews F: Smoking hams, 20.70 ; Mason & Risch Co: Tuning pianos, 6 25 ..... 26 95
Murty, Jas: Iron pans, 5 doz, 60.00 ; granite pails, 5 doz, 22.30 ; coal hods, 20 doz, 20.00 ; boilers, 18, 14.85 ; plates, 10 doz, 14.40 ; chambers, 1 doz, 4.68 ; tea cups, 5 doz, 6.65 ; iron, tinware, etc, 14.24 ..... 157 12
Moore, Wm. & Son: Prunes, 19 50 lbs, 149.56 ; soap, 1,800 lbs, 66.00 ; grapes, 20 lbs, 4.00 ; candy, 20 lbs, 3.00 ; lemons and oranges, 21 75 ; peaches, 6.25 ; sundries, 5.00 ; berries, 140.27 ; plums, 50 baskets, 25.00 ; fruit, 19 35 , water melons, 8.25 ..... 448 43
Murphy, W. K: Interments, 24.00 ; Might Directories : Directories, 2, 10.00 ..... 34 00
Monetary Times: Subscription, 2.00 ; Meadows, The G. B. Co: Wire screen, 50 ft, 3.13 ; 5 13
Moore, Jas: Hay, 3 tons 140 lbs, 33 77 ; Merritt, T. J: Wall Paper, 7 60 ..... 41 37
Miller, Hugh & Co: Drugs and chemicals, 11.09 ; Mail Ptg. Co. Subs, 8.00 ..... 19 09
Macdonald, John & Co: Sheeting, 628 yds, 115.89 ; towelling, 250 yds, 25.00 ; shirting, 855 yds, 98 32 ; hoods, 1 doz, 5.96 ; shawls, 13, 13.00; lining, 169 yds, 12 80 ; linen, 39 yds, 6.44; napkins, 2 doz, 4.00; shaker, 124 yds, 10.54; tabling, 97 yds, 43.88 ; cotton, 119 yds, 11.95 ; butter cloth, 136 yds, 4 97 ; thimbles, 5 doz, 6.00 ; lace, 11.90 ; towels, 10 doz, 17.50 ; ties, 6 doz, 7.50; handkerchiefs, 6 doz, 4 50; muslin, 99 yds, 12 38 ; frilling, 3 grs, 10.05 ; tape, 6 grs, 6 00 ; hair pins, 20 lbs, 5.00 ; Sundries, 18.84 ; flannel, 24 yds, 4 80 ; denim, 107 yds, 19.22 ; mitts, 9 doz, 25.50 ; braces, 10 doz, 26 25 ; shirts and drawers, 20 doz, 90.00 ; socks, 20 doz, 40.00 ..... 658 19
McDonald, A: Lumber, 30,682 ft, 550 22 ; McLean, T. W: Services taking stock, 75.50 ..... 625 72
McLaughlin, M. & Co: Flour contract, 1,075 bbls, at 3.32½ 3,574 38
McWilliam & Everist: Oranges, 9 boxes, 32.10 ; lemons, 2 boxes, 5.50 ; apples, 4 bbls, 18.00 ; 55 60
McColl Bros. & Co: Sal soda, 3,300 lbs 25 74
Mackenzie, J. H: Drugs and chemicals 8 25
Macdonald, H. S: Drugs and chemicals, 33 80 ; McCleary, Jos: Hay, 4 tons 1,900 lbs, 71.77 105 57
Nelson, H. W. & Co: Brooms, 45 doz, 116.30 ; fibre pails, 2 doz, 7.00 ; hair brushes, 2 doz, 5.60 ; matches, 2 cases, 8.20 ; sundries, 2 73 ; whitewash brushes, 2 doz, 4.70 ; combs, 1 gro, 9.60 ; scrubs, 6 doz, 9.08 ; whisks, 3 doz, 4.80 ..... 168 01
Nugent Jno: Drugs and chemicals, 42.25 ; Nisbet & Auld: Serge, 90 yds, 193.50 ..... 235 75
O'Donell, J. J: Hay 3 tons 720 lbs 36 96
Peterboro' Mattress Co: Feather pillows, 298 ..... 538 20
Peterboro' Hardware Co: Glass, 59.05 ; white lead, 1,500 lbs, 81.00 ; files, 5 doz, 4.50 ; packing, 302 lbs, 45.30 ; alabastine, 400 lbs, 25.00 ; varnish, 5 gals, 15.50 ; shellac, 8 gals, 13.00 ; whiting, 750 lbs, 5.99 ; ham slicers, 10, 5.00 ; iron, hardware, etc, 10.90 ..... 265 24
Park, Blackwell Co: Balance 1901, butter contract, 610 lbs at 21½, 131.15 ; sausage casings, 10 bdles, 7.00 ..... 138 15
Pugsley, Dingman & Co: Laundry soap, 3,346 lbs 133 84
Queen City Oil Co: Salad oil, 45 gals, 41.50 ; paraffine wax, 100 lbs, 8.82 ; coal oil, 88 gals, 14.90 ; sundries, 17.81 ; turpentine, 44 gals, 30.63 ; gasoline tank, 4.50 118 16
Ryan, The Wm. Co: Balance 1901 butter contract, 240 lbs at 18½c, 44.40 ; 1902 butter contract, 22,074 lbs at 20⅞c, 4,607.94 ; split peas, 25 bbls at 4.50, 112.50 ; turkeys, 1,711 lbs, 194.89 ; geese, 246 lbs, 22.23 ; eggs, 4,464 doz, 820 08 ; cheese, 1,932 lbs, 216.45 ; pot barley, 23 bbls, 110.00 ; salt, 40 bbls, 52.00

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, TORONTO.—*Continued.*

EXPENSES.—*Continued.*

beans, 13 bus, 20.15 ; lard tubs, 1 doz, 4 20 , herring, 12.00 ; cod fish, 96 lb, 6.24 ; syrup, 55 gals, 57.50 ; sundries, 12.24 ; evap. apples, 750 lbs, 67.50 ; gold dust, 6 bbls, 23.00 ; bacon and ham, 143 lbs, 20.82 ; corn meal, 4 bbls, 16.00 ; jam, 168 lbs, 11.76 ; table salt, 3 sacks, 3.15 ; sausage, 100 lbs, 8 00..... $6,443 05

Rogers, Chas. & Sons Co: Perforated seats, 5 doz, 9.00; mattrass, 20.00; sofa springs, 10.00; twine, 41 lbs, 7.90 ; canvas, 108 yds, 10.80 ..... 57 70

Rutherford, Marshall & Co: Butter contract, 5,043 lbs at 16¾c, 844.72 ; eggs, 60 doz, 12.00 ; 856 72

Rogers, Elias Co: Balance 1901 coal contract, grate, 82 tons 1,705 at 4.85, 401.85 ; stove, 29 tons 1,530, lbs at 5.09. 151.50 ; nut, 27 tons 310 lbs at 5 09, 138.23 ; hardwood, 75 cords at 5.60, 420.00 ;
1902 contract, soft screenings, 152 tons 1,390 lbs at 2 93, 447.40 ;
grate, 16 tons 1,570 lbs at 5.48, 91.98 ; nut, 1 ton 860 lbs at 5.73, 8.19 ; stove, 1 ton 1,040 lbs at 5.73, 8.71 ;
soft coal: special contract, 912 tons 1,740 lbs at 4.37, 3,989.25 ..... 5,657 11

Robertson, The Jas. Co: Basins, 6, 10.50 ; brass stop cocks, 24, 27.75 ; bath, 15.00 ; valves, castings, etc, 94.34 ; sundries, 15.40 ..... 162 99

Robinson, W. T: Potato contract, 2,875⅛ bus at 65 ..... 1,866 72

Rathbone, G: Sawdust, 200 bbls, 20.00 ; Rennie, Wm: Seeds, 34.15 ..... 54 15

Ritchie, Jno: Hay, 15 tons 1,350 lbs, 196.41 ; Ritchie, Wm: Hay, 9 tons 820 lbs, 123.19.... 319 60

Reid, Thos: Hay, 2,450 lbs, 13.47 ; Simmons, Wm: Hay, 2,740 lbs, 15.07 ..... 28 54

Sullivan, J. C: Sugar, 2,956 lbs, 120.60 ; currants, 207 lbs, 14 49 ; rice, 750 lbs, 26.25 ; tapioca, 541 lbs, 21.64 ; sago, 478 lbs, 19 12; corn starch, 80 lbs, 5 60; tea, 950 lbs, 237.50 445 20

Sutcliffe, J. & Sons: Flannelette, 533 yds, 39.95 ; cotton, 353 yds, 26 53 ; ticking, 181 yds, 31.64 ; denim, 110 yds, 17.68 ; holland, 187 yds, 22 41..... 138 21

Sundry Newspapers: Advertising *re* supplies, 137.75 ; *re* fuel, 254.50 ..... 392 25

Stewart & Wood: White lead, 500 lbs, 28 50 ; glass, 6.40 ; alabastine, 100 lbs, 6.50 ; alcohol, 1 gal, 5.50 ; japan, 10 gals, 8.50 ; turpentine, 5 gals, 4 35 ; raw oil, 5 gals, 4.85; whiting, 400 lbs, 4.00 ; putty, 2.52 ..... 71 12

Simpson, F. & Sons. Geese, 587 lbs, 49 90 ; ducks, 9 pairs, 9.00 ; chickens, 30 pairs, 27.00 85 90

Scott, W.D., M.D: Medical at'dance on R. McGammon for injuries received while on duty 65 00

Skein, J. C: Hay, 9 tons 1,750 lbs, 130.68 ; Smith & Lawrason, ammonia, 6 bbls, 103.74 .. 234 42

Sanderson & Rossiter: Scrubs, 14 doz. 21 80 ; kalso. brushes, ½ doz, 12.00 ; brooms, 1 doz, 6.00 ; sundries, 19.60..... 59 40

Steele, Briggs Seed Co: Seeds, bulbs, etc, 22 00 ; St. John's Convent, chapel supplies, 11.00 33 00

Standard Vinegar Co: Vinegar, 84 gals, 19.32 ; barrels, 4.00..... 23 32

St. Michael's Cathedral: Cab hire *re* religious services 150 00

Stewart, A: Hay, 2,420 lbs, 31.08 ; Stewart, J. J: Hay, 11 tons 1,080 lbs, 145.70..... 176 78

Shaughnessy, W: Sand, 3.00 ; teaming, 24.00 ..... 27 00

Toronto Coffee & Spice Co: Coffee, 1,125 lbs, 281.25 ; baking powder, 400 lbs, 72.00 ; spices, 145 lbs, 36.95 ; pepper, 220 lbs, 41.00..... 431 20

Turnbull, J. C: Sheeting, 1,137 yds, 216.66; towelling, 385 yds, 38.50; linen, 40 yds, 10.00; tabling, 98 yds, 49.25 ; towels, 10 doz, 20 00 ; covering, 10 yds, 15.90 ; flannelette, 60 yds, 7.50 ; serge, 30 yds, 15.00 ; scrim, 221 yds, 22.10 ; crash, 207 yds, 20.75 ; sateen, 151 yds, 25.12..... 440 78

Toronto Laundry Soap Co: Laundry soap, 668 lbs 33 40

Toronto Specialty Co: brushes, 6 ..... 13 50

Turnbull & Russell Co: Packing, 9 lbs, 6.05 ; packing elevators, 17.10..... 23 15

Toronto Laundry Machine Co: Repairs to washing machine 100 90

Turner & Porter: Interments..... 8 00

Taylor, John & Co: Laundry soap, 13,037 lbs, 521.48 ; toilet soap, 66.00 ..... 587 48

Turner, J. J. & Sons: Triangle bunting, 10 doz, 25.00 ; bunting, 200 yds, 13.00 ; British ensigns, 20, 22 50 ..... 60 50

Timpson, G. J. Music supplied, 174.50 ; Toronto Electric Light Co: light, 333 52..... 508 02

Toronto Railway Co: Car tickets, 115.52 ; Tracy, Wm: Travelling expenses, 23.40..... 138 92

Wheeler & Bain: Electric Stove, 12.00 ; iron, tinware, etc, 49.26 ; tin, 50 sheets, 12.18 ; wire 206 lbs, 7.21 ; lantern globes and burners, 8 doz, 9.60 ; lanterns, ½ doz, 6.00 ; repairs to boiler, 5.00 ; iron, 13.52..... 114 77

Wicks, Samuel: Hay, 16 tons 1,890 lbs 186 39

West Chemical Co: disinfectant, 15 gals 15 00

Wicks, F: Hay, 5 tons 200 lbs, 54.79 ; apples, 10 bbls, 19.00 ..... 73 79

Western Hospital: Medical attendance and board for R. McCammon, injured while on duty 30 00

Wilson, The Harold A. Co: Repairing racquets, 5.75 ; foot balls, 5.50..... 11 25

Wilson, C. & Son: Repairs and testing scales, 39.90 ; Water Works Dept: water, 3,208.63.. 3,248 53

Whillans, R & Co: Sand, lime, etc, 16 08 ; fire brick, 500, 17.50..... 33 58

Warwick Bros. & Rutter: Printing and binding, 148.50 ; Wells, J: dentistry, 125.25 .... 273 75

Sundry persons: Accounts unenumerated under 10.00..... 32 13

ASYLUM FOR INSANE, LONDON.

SALARIES. ($39,418.41.)

R. M. Bucke, M.D.....Two months' salary as Medical Superintendent 333 32

G. A. MacCallum, M.D.Ten do do 1,655 92

H. E. Buchan, M.D ....Twelve do Assistant do 1,100 00

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, LONDON.—*Continued.*

SALARIES.—*Continued.*

Frank Beemer, M.D	Five and ½ mths'	salary as	First Assistant Physician	$458 32
R. W. Bell, M.D.	Six and ½	do	do do	541 68
W. T. Wilson, M.D.	Seven	do	Second do	525 00
P. MacNaughton, M.D.	Five	do	do do	375 00
C. A. Sippi	Twelve	do	Bursar	1,400 00
David Rodger		do	Bursar's Clerk	800 00
D. MacKenzie		do	Storekeeper	1,000 00
Norval Wanless		do	Assistant Storekeeper	600 00
Jas. B. Duff		do	Baker	300 00
F. H. Bailey		do	Assistant Baker	216 00
Geo. Thurling		do	Butcher	360 00
Alex. Macfie		do	Engineer	740 00
Geo. Ross		do	First Assistant Engineer	400 00
Andrew Dick		do	Second do	420 00
Wm. England		do	Laundryman	300 00
Stokers (7)		do		1,725 29
John A. Stewart		do	Carpenter	550 00
Fred MacVean		do	Assistant Carpenter	500 00
T. Westcott		do	Plasterer and Bricklayer	600 00
Wm. Noble		do	Painter (board)	420 00
John Glenn		do	Tailor	460 00
Thos. Lashbrook		do	Shoemaker	300 00
Wm. Murdock		do	Farmer	650 00
John Gale		do	Plowman	240 00
Farm Hands (3)		do		648 00
L. McKinnon		do	Night Watchman	240 00
Geo. W. Rennie		do	Gardener	500 00
James Gall		do	Assistant Gardener	300 00
Amos Duval		do	Second Assistant Gardener	300 00
Richard Flynn		do	Caretaker, Sewage Fields	384 00
M. A. Pope		do	Matron	600 00
E. S. Parker		do	Assistant Matron	300 00
Cooks (6)		do		832 58
Housemaids (6)		do		720 00
Laundresses (4)		do		564 00
Mary Charlton	Three	do	Dairymaid	30 00
Lena Carroll	Nine	do	do	90 00
M. O'Laughlin	Twelve	do	First Tailoress	168 00
M. Thirsk		do	Second do	144 00
Penelope Gall		do	Typewriter and Portress	180 00
Maggie Doyle		do	Assistant Portress	120 00
Chief Male Attendants	(3)	do		1,012 00
Male Supervisors	(8)	do		2,093 03
Male Attendants	(30)	do		6,987 77
M. A. Meehan		do	Chief Female Attendant	250 00
Female Supervisors	(6)	do		1,218 00
Female Attendants	(30)	do		4,027 00
Fem. night do	(3)	do		474 00
J. Cadenhead		do	Trained Nurse	268 00
Eda J. Angus		do	Musical Directress	97 00

EXPENSES, ($85,313.50.)

Anderson, Jas.: Gravel, 1 cord, 4.00; hay, 19 tons 1730 lbs., 168.85; apples, 52 bbls, 52.00	224 85
Anderson, I. & Co.: Stationery, 10.31; books, 11.15	21 46
Angus, Geo.: Admission of patients to circus 26.00; Am. Journal of Insanity, vol. 59, 5.00	31 00
Anderson & Nelles: Drugs and Chemicals, 529.98; Allen, S.: vinegar, 124 gals., 28.52	558 50
Armstrong, J. H.: Exp. recovering eloper, 15.00; Armstrong, J. P.: horseshoeing, 24 84	39 84
Blanchard, T.: Fish, 300 lbs., 27.00; Brock, T.: fish, 10,288 lbs., 900 82	927 82
Bodkin, F.: Hay, 1,990 lbs. 9.95; Baker, H.: hay, 2,260 lbs, 11.30	21 25
Belton, Geo. H.: Lumber, 18,497 feet, 616.23; posts, 56, 14 00	630 23
"Bovril Ltd.": Bovril, 1 doz., 15.00; Brown, R. C. & Co.: boots, shoes, 441 pr., 632.55	647 55
Ball, Thos.: Seeds, 58.91; Bailey, A.: Turkeys, 786 lbs., 70.74	129 65
Breene M.: Hay, 7 tons 880 lbs, 63.24; Bell, R. W., M.D.: exps re transfer from Toronto, 47.84	111 08
Brock, G. S.: Moss, 1,252 lbs., 125.20; Burns, Jas. & Son: horseshoeing, 86.82	212 02
Beemer, F.: Music for annual ball, 30.00; Bursar. To pay sundries, 19 14	49 14
Bell Telephone Co.: messages, 9.00; repairs, 2.50	11 50
Bucke, R. M., M.D.: Balce.re table allow'ce, 78 83; allow'ce re furniture and furnishings, 20.07	98 90
Cowan, Jas. & Co.: Nails, 3 kegs, 9.55; glass, 123 00; pruning knives, 3, 4.25; whips, 1 dozen, 10.50; white lead, 1,200 lbs., 84 00; W. W. heads, ½ doz, 13.50; kalso brushes, ½ dozen, 27.00; whiting, 5 bbls., 22.50; glue, 50 lbs., 10.00; paints, oils, 16.00; shafting oil, 84 gals., 33.60; cement, 5.00; iron, hardware, 69.33	428 23

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, LONDON.—*Continued.*

EXPENSES.—*Continued.*

Clarke, John: Boots, 110 pair, 341.00 ; Coursey, J.: hay, 5½ tons, 47.04 ... $388 04
Craig, W. J.: Lumber, 13,269 ft., 323 07 ; posts, 23, 5.75 ; oak, 120.00 ; shingles, 45.00 493 82
C.P. Industries: Tweed, 704 yds.,352.00; slippers 144 pairs,180.00; blankets, 2,109 lbs., 843.60; binder twine, 120 lbs , 13.50 ..... 1,389 10
Clark, John: Straw, 12 tons, 1010 lbs., 75.03 ; Cameron, L. K.: stationery, 30.82 ..... 105 85
Can. Packing Co.: Slaughter house refuse, 16.59 ; bacon and hams, 258 lbs., 37.41 ; brawn, 2,220 lbs., 177.60 ..... 231 60
Campbell, John: Rd. oatmeal contract, 100 bbls. at 4.75 ..... 475 00
Carbon Studio: Photo, 5.60 ; Carling, B , hay, 6 tons, 41 97 ..... 47 57
Cotter, Jas.: Rental right of way through field between Asylum and Can. Packing Co., 25.00; straw, 3¼ tons, 18.75 ; hay, 6 tons 480 lbs., 59.28 ..... 103 03
Citizens Gas Control Co.: Rent of governor for 1901 ..... 200 00
Cairncross & Lawrence: drugs 178 12
City Gas Co.: Gas, 2,633.60 ; coke, 2.50 ; mantles, fixtures, etc., 19 80 ..... 2,655 90
Catholic Record: Candles, 12 lbs., 6.00 ; subscriptions, 8.00 ..... 14 00
C.P.R. Tel. Co. Messages, 2.80 ; Can. Exp. Co., charges, 5.65 ; C. P. Ry , freight, 3.24 11 69
Darch, J. & Sons: Harness supplies, 18.30 ; Dennis Wire & Iron Co., wire screens, 6.46 .. 24 76
Dayman, W. H.: Baskets. 7.05 ; Diamond Glass Co.: bottles, 22.04 ..... 29 09
Dufton, A. C.: Yarn, 287 lbs., 129.15 ; Electric Boiler Compound Co.: compound. 26.50 155 65
Elliott, Marr & Co.: Tomatoes, 18 dozen cans, 19.20 ; prunes, 2,400 lbs., 145.50 ; pipes, 12 dozen, 23.50 ; sugar, 27,882 lbs., 1,018.43 ; tobacco, 675 lbs., 263 25 ; currants, 1,105 lbs., 66 50 ; evap. apples, 1881 lbs., 120.63 ; sal. soda, 577 lbs., 5.77 ; blueing, 276 lbs , 46.92 ; raisins, 1,244 lbs., 97.82 ; rice, 4,032 lbs., 137.76 ; matches, 12 cases, 36.00 ; syrup, 34 13 ; tapioca, 345 lbs., 13.36 ; shoe brushes, 1 dozen, 4.25 ; starch, 700 lbs., 56.00 ; peaches, 12 dozen cans, 27.00 ; mustard, 6 jars, 4.50 ; sago, 169 lbs., 6.76 ; molasses, ½ bbl., 7.92 ; corn starch, 80 lbs., 5.80 ; sundries, 60.19 ..... 2,201 19
Element, W. J.: Lime, 63 bbls., 50.67 ; plaster, 5 bbls., 12.50 ; gypsum, 1 ton, 9.00 72 17
Ferguson, John & Sons: Wardrobes 2, 24.00 ; bureau, 12.00 ; chairs 5, 30 00 ; roll desk, 18.50 ; pantisote, 175 yds., 175.00 ; spring, 3.50 ; lounge, 10.00 ; curtains, 1 pair, 8.00 ..... 281 00
Farm Exchange Acct : Eggs, 2,016 doz., 306.99 ; dressed pork, 4,703 lbs., 286 36 ..... 593 35
Fitzmaurice, B. A.: Spittoons. 1 doz., 12.00 ; Flaherty, M., turkey, 607 lbs., 54.63 66 63
Fallon, Chas.: Straw, 5 tons 700 lbs., 24.42 ; Fitzgerald, F.: straw, 3 tons 910 lbs , 20.73 50 15
Fraser, McMillan & Co.: Felt hats, 2 dozen, 24 00 ; blankets 119, 144.65 ..... 168 65
Ferrol Co.: Ferrol, 1 dozen, 19.80 : Foster, J. G. & Co.: directories 3, 9.00 ..... 28 80
Flynn, J. P.: Expenses recovering eloper 8 90
Gorman, Eckert & Co.: Coffee, 4,288 lbs , 1,103.10 ; chicory, 260 lbs., 33.80 ; sundries, 15.40 ; pepper, 256 lbs., 56.29 ; rye, 560 lbs., 22.40; allspice, 70 lbs., 14.00; cloves, 10 lbs 3.00 ; ginger, 20 lbs , 6.00; nutmegs 10 lbs, 8.00; vanilla, 2 gals., 20.00; mustard seed 25 lbs., 7.50 1,289 49
Graves, O. B.: Moulding 462 feet, 15.98 ; Gurd & Co.: brooms, 25 dozen, 60.00 ..... 75 98
Gallagher, M. J.: Salary held *re* sickness, 70.00 ; Galbraith, R : honey, 974 lbs., 97.40 ... 167 40
Girvin, D.: Veal, 3,412 lbs., 242 83 ; lamb, 30.00 ..... 272 83
Gillean, Thos.: Spectacles 12½ doz., 50 00 ; Gammage, J. & Sons: seeds, bulbs, etc., 95 00. 145 00
Green, J. C & Co.: Furnishings, 10.66 ; lace, 58 yds., 31.90 ; ribbon, 234 yds., 20.88 63 44
Gerry, Wm.: Picture moulding 3,700 feet, 37.00 ; Gale, John: In lieu of board, 58.33 .... 95 33
G.N.W. Tel. Co.: Messages, 6 13 ; G. T. Ry.: freight charges, 24.81 ..... 30 94
Hamilton, A. M. & Son: Oats, 850 bu., 440.00 ; insect powder, 36 bbls.. 144.00 ; salt, 75 bags. 65.75 ; linseed meal, 4 bags, 13.75 ; seeds, 95.70 ; sundries, 12.73 ; ch. oats, 7.00; split peas, 5 bags, 11.25 ; beans, 8¼ bu., 12.50 ; corn meal 6 bbls, 25.50 ; cotton bags, 3 dozen, 6.67 ; bran. 5 tons. 80.00 ..... 914 85
Hunter, R.: Purchase of meat, 14,224.24 ; Hobbs, John: brooms, 25 dozen, 60 00 ..... 14,284 24
Heaman. Geo.: Repairing vehicles, 36.95 ; Husband, Jas. & Son: honey 1,587 lbs., 126.96 163 91
Heaman, W. & Son: Cement, 47 bbls., 140.50; cement pipe, 200 ft., 25.00; sundries, 4.00 ; fire brick 715, 31.18 ; lime, 30 bbls., 25,50 ; clay, 520 lbs., 7.80 ..... 233 98
Hueston R.: Livery hire *re* religious services 78 00
Hobbs Hardware Co.: Glue, 50 lbs., 5.25 ; white lead, 1,750 lbs., 104.01 ; raw oil, 90 gals., 71.85 ; benzine, 135 gals., 23 69 ; putty, 903 lbs., 21.67 ; meth. spirits, 4 gals., 9.50 ; varnish, 19 gals , 31.30 ; turpentine, 88 gals., 63.52 ; sheet rubber, 11 lbs., 10.45 ; paints and oils, 109.55 ; linseed oil, 10 gals., 9.20 ; iron, hardware, etc., 107.51 ; shellac, 5 gals., 12.50 ; brushes, ½ doz., 5 00 ; shaking bars, 2 sets. 114.00 ; japan, 5 gals., 4.25 ; disinfectant, 44 gals., 55.00 ; rubber packing, 34 lbs., 7.08 ..... 765 33
Imperial Knitting Co : Sweaters, 25 doz., 214.00 ; Imley Peter: Straw, 11¼ tons, 64.83 .. 278 83
Johnson, J. L.: Tumblers, 105 doz., 87.25 ; dinner plates, 10 doz., 12.00 ; ewers, 1 doz., 6.00 ; basins, ½ doz., 3.00; bowls, 6 doz., 7.20 ; soup plates, 45 doz., 45.00 ; cups, 50 doz , 50.00 ; toilet sets, 2, 10.00 ; plates, 70 doz , 73.50 ; chinaware, etc., 20.18 ..... 314 13
Johnson, Jno.: Cordwood, 40 cords at 5.00, 200.00 ; Johnston, Alex.: Brick, 5,000, 33.75 233 75
Johnston, Chas. D.: Boots, 1 pr., 2 00 ; gaiters, 247 pr., 407.55 ; rubber boots, 11 pr., 53.00 ; rubbers, 56 pr.. 38.70 ; overshoes, 10 pr., 20 00 ; sundries, 2.00 ..... 523 25
Johns, Chas.: Wheelbarrows, 5, 15.00 ; Kernohan & Ferguson: Lumber, 3,000 ft., 59.00 74 00
Kerrigan Hardware Co.: Disinfectant, 93 gals., 120.85 ; sheet rubber, 30 lbs., 10.50 ..... 131 35

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, LONDON.—*Continued.*

EXPENSES.—*Continued.*

Kingston Asylum: Scrub brushes, 84 doz. ... $180 00
London Electro-Plating Co.: Electro-plating ... 13 75
Leith, Geo.: (Bal 1901) Rld wheat contract, 10 bbls., at 2.80, 28.00; (1902) Rld wheat contract, 160 bbls, at 2 70, 432 00; corn meal, 45 bbls., 170.75; pot barley, 4 25; rolled meal, 15 bbls., 75.25; salt, 40 bbls, 44.00; table salt, 5 bbls, 13.75; potatoes, 943 bags., 726.51; land salt, 8 tons 1,810 lbs., 44.08; sundries, 1.35 ... 1,539 94
London Shoe Co: Boots and shoes, 32 pr., 24 00; gaiters, 10 pr., 7.50 ... 31 50
Liddicott, E. L: Butter contract, 34.264 lbs. at 21c, 7,195.44; sugar, 16,386 lbs., 657 34 ... 7,852 78
London Hardware Co.: Iron, hardware, etc., 38 01; lard oil, 56 gals., 56.20; packing, 99 lbs, 62.46; red lead, 100 lbs., 10.00; japan, 15 gals., 15 00; scoop shovels, ½ doz. 7.50 ... 89 17
London Heating Co: Grate baskets ... 7 80
Lalor, The F. R. Canning Co.: Peas and corn, 60 doz. cans ... 52 00
London Brass Works Co.: Basin cocks, 12, 15.00; valves, 20, 38.71; castings, 25.53; valves for steam trans, 2, 24.00 ... 103 24
Lind, Kerrigan & Co: Sugar, 2.112 lbs., 71 58; syrup, 25 gals., 8.75; rice, 1,344 lbs., 48.72; starch, 228 lbs., 16 38; tobacco, 60 lbs., 21.60; raisins, 280 lbs., 18 69; sundries, 11.15 ... 196 87
Lewis, F.: Turkeys, 367 lbs., 33 03; Ludwig, L. V.: vinegar, 631 gals. 113.58 ... 146 61
London Soap Co: Laundry soap, 9,861 lbs, 443,76; toilet soap, 98 boxes, 293.40; toilet soap, 12½ grs., 46 50 ... 783 66
Lacey, R. F. & Co.: Shoe leather, 518 lbs., 151.95; needles, tacks, rivets, etc., 20.53 ... 172 48
London Ammonia Co: Powder Ammonia, 1,325 lbs ... 79 50
Leonard, E. & Sons: Repairs to boiler ... 28 99
London Street Ry. Co: Carrying mail, 100.00; car tickets, 11.00 ... 111 00
Masuret, M. & Co.: Sugar, 5.280 lbs., 193.50; raisins, 1,400 lbs., 109.90; starch, 700 lbs, 49 00; currants, 315 lbs, 20.48; laundry soap, 5,400 lbs., 162 00; rice, 4.032 lbs., 151.20; syrup, 53 gals., 16.10; mustard, 22 jars, 17.60; sal soda, 1.125 lbs., 11.25; blueing, 120 lbs., 20 40; blacking 1 grs., 4.80; scrub brushes, 2 doz, 11.00; sundries, 11.95; tobacco, 180 lbs., 75.60; tapioca, 179 lbs, 6.72; pails, 2 doz., 3 80 ... 865 30
Marshall, Jno. & Co.: Harvester mitts, 42 doz. pr., 99.40; hats, 9½ doz., 31 25; lined mitts, 20 doz pr., 105.00; waterproof coats, 12, 66.00 ... 301 65
Marsh Mfg. Co.: Laundry soap, 1.699 lbs, 82.17; Muxworthy, Thos.: horseshoeing, 18.42 ... 100 59
Murphy, F. C.: Lard, 400 lbs., 48 00; bacon and ham, 116 lbs, 16.71 ... 64 71
Murphy, J. B.: Lard, 200 lbs., 24.00; bacon and ham, 84 lbs., 11 83 ... 35 83
Mossop, H. J.: Straw, 11 tons, 66.15; Marshall, Jno.: Hay, 2,520 lbs., 11.34 ... 77 49
Magee, F. W.: Auer lights, 29 40; mantles, 3 60 ... 33 00
Mallock, Wm. & Co: Castings, 950 lbs., 39.36; cable, 240 ft., 13.20; sundries, 19.90 ... 72 46
Muir & Co.: Yarn, 624 lbs., 312.00; Metherall, J. W.: Turkeys, 286 lbs., 25 74 ... 337 74
Marshall, G. & Co: Tea, 219 lbs., 48 07; McLeod, N: Geese, 283 lbs., 22.64 ... 70 71
McInnes, A.: Bulbs, seeds, etc. ... 34 04
McNaughton, P., M.D.: Expenses *re* transfer from Mimico ... 24 80
McClary Mfg. Co.: Castings, 6 56; boiler, 32 82 ... 39 38
McMurphy, D.: Syrup, 43 gals ... 43 00
MacCallum, G. A., M.D: Balance *re* table allowance, 271.62; allowance *re* furniture and furnishings, 54 49; expenses *re* convention, Montreal, 100.00; trav. expenses, 15 45 ... 441 56
Nelson, W. J: Share of maintenance of school children of asylum officers ... 100 00
O'Meara, P.: Cab hire *re* religious services ... 96 60
O'Mara, M: Bacon and ham, 147 lbs., 23.52; lard, 800 lbs., 100.00 ... 123 52
Perrin, D. S. & Co.: Assorted biscuits, 1,221 lbs., 89.10; mixed candy, 460 lbs., 57.44 ... 146 54
Peoples' Coal Co.: (Bal. 1901 coal contract)—small egg, 942 tons 70 lbs., at 5 30, 4.992.77; stove, 49 tons 30 lbs., at 5 30, 259 78; (1902 con) do 1,500 tons 1,710 lbs., at 5.90, 8,855.04; nut, 33 tons 540 lbs., at 5 65, 187.97; stove, 125 tons, at 5 65, 706 25; soft, 31 tons 1,550 lbs., at 4.25, 135 04 ... 15,136 85
Parnell, E., Jr.: (Bal. 1901 flour contract) 75 bbls., at 3.28, 246.00; (1902 flour contract) 1,650 bbls., at 3.44, 5 676.00 ... 5,922 00
Partridge, Thos. L.: Iron pipe, 1,375 ft., 162.78; fittings, 315 lbs., 57.60; repairs to boiler, 24.00; plumbers' supplies, 175.27; rubber tubing, 125 feet, 21.25 ... 440 90
Parker, R. & Co.: Dyeing table cloth, curtains, etc., 9.00; Postmaster: Rent of box, 6.00 ... 15 00
Queen City Oil Co.: Shafting oil, 47 gals, 13.08; parafine wax, 1,395 lbs., 110 98; lard oil, 100 gals., 125 59; cylinder oil, 90 gals., 54.83 ... 304 48
Robinson, Little & Co.: Hessian, 1,110 yds., 254.00; thread, 36 doz., 81 00; holland, 95 yds., 10.92; flags, 8.25; yarn, 30 lbs, 11.10; corsets, ½ doz pr., 3 75; quilts, 313, 317.97; towels, 4½ doz., 13.65; spools, 4½ doz., 24 30; combs, 75 doz., 91.24; muslin, 504 yds., 60.84; linen, 207 yds., 79 68; shirting, 1,136 yds., 124 40; print, 1,505 yards, 149.74; towelling, 767 yds, 68 04; crash, 569 yds., 47.06; ticking, 445 yds., 71.28; cotton, 493 yds., 37.69; buttons, 9.29; sheeting, 4,471 yds., 617.39; table linen, 958 yds, 354.18; pique, 45 yds. 8.95;

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, LONDON.—*Continued.*

EXPENSES.—*Continued.*

sundries, 123.21 ; dowlas, 429 yds, 81.03 ; huck, 219 yds , 34.01 ; curtains, 6 prs., 20 55 ; angola, 1,086 yds 108.60 ; duck, 61 yds., 7.69 ; shawls, 85.34 ; hoods, 2½ doz , 11.25 ; canvas, 100 yds., 12.00 ; linenette, 53 yds., 8.21 ; drill, 64 yds., 5.48 ; flannelette, 432 yds., 32.58	$2,974 67
Reid, Jas. & Co.: Iron, hardware, etc., 108.48 ; pad locks, 5 doz. 19.50 ; casters, 46 sets, 17.30 ; springs, 50 lbs , 9.00 : yale locks, 10, 7.00 ; screws, 37 grs. 21.19 ; rope, 100 lbs., 16 00 ; nails, 12 kegs, 37.15 ; hinges, 2 doz., 6.60 ; files, 3 doz., 7.60 ; sash cord, 74 lbs., 23 36 ; spoons, 42 doz., 73.40 ; razors, 5 doz., 7.50 ; knives, 8 doz., 26 20 ; wire netting, 22 yds., 6.60 ; forks, 1 doz , 5 00 ; assorted locks, 4 doz., 13.20 ; tacks 1½ grs , 6.60 ; chair webbing, 24 pcs., 13.20 ; key rings, etc.. 17.10 ; rep. lawn mowers, 49.70 ; carpet-sweepers, 2, 6.00 ; bitts, 1 doz., 5.50 ; carvers, 6 pr., 9.00	512 18
Rolph Smith & Co.: Stamping, 12.00 ; Roughley, Geo: Roofing kitchen, 24.72 ;	36 72
Reid Bros. & Co: Mucilage, 1 doz.qts., 9.00; stationery,etc., 237.22 ; Ink, 4½ doz. qts., 16 50 ; document fyles, 30.75 ; blank books, 103.50 ; watchmen's books, ½ doz, 6.00 ; toilet paper, 2 cases, 18.00 ; hand books, 100, 75.00 ; playing cards, ½ gro, 9.00 ;	504 97
Rogers Electric Co: Electrical fittings, 14.92 ; Russell, E. H. & Co: Castings, 14.47 ;	29 39
Robson, W: Poultry, 15.14 ; Smyth. J. B: Tobacco, 210 lbs, 81.90 ;	97 04
Struthers. R. C. & Co: Shirting, 4998 yds, 543.05 ; tweed 454 yds, 45.42 ; cotton, 9952 yds, 661 03 ; duck, 50 yds, 6.25 ; denim, 353 yds, 54 47 ; ticking, 1226 yds, 196.12 ; print, 1801 yds, 180.12 ; green baize, 7 yds, 4.05 ; crash, 540 yds, 50.40 ; lawn, 175 yds. 20.14 ; curtain muslin, 49 yds, 11.03 ; braces, 38 doz. pair, 71.40 ; thread, 17½ gro, 95 25 ; towelling, 693 yds, 79.50 ; batting, 5.25 ; muslin, 307 yds, 26.36 ; warp 40 bdles, 32.00 ; scrim, 200 yds, 17 54 ; sundries, 45 78 ; canvas, 150 yds, 19.50 ; moleskin, 257 yds, 29.59 ; flannelette, 1088 yds, 112 88 ; handkerchiefs, 23 doz, 14.05 ; hose, 8 doz, 17.60 ; carpet samples, 9.15 ; ties, 2 doz, 5 25 ; gloves, 5 doz, 14.00 ; shawls, 2½ doz, 26 70 ; dress goods, 56 yds, 22.60 ; shaker, 45 yds, 4.25 ; cambric, 471 yds, 47.08 ; brooches, 4, 7.00.....	2,474 81
Screaton, A. & Co: Furnishings, 21 58 ; carpets, 72 yds, 85.70 ; rugs, 2, 10 00 ; linoleum, 9½ yds, 9 50	126 78
Sanborn, G. W. & Co: Tea 1713 lbs, 376.86 ; Sweeney, D: Fire extin'er brackets, 24 00 ;	400 86
Stevely, Wm. & Son: Iron, 755 lbs, 76 43 ; charcoal, 111 bu, 24.70 ; solder, 12 lbs, 3.00 ; tin plates, 9 50 ; tin, 226 lbs, 19.21 ; iron, tinware, etc etc, 98.52 ; milk can handles, 36 pr, 5.40 ; metal ceiling, 17.50 ; globes 12 doz, 36 75 ; galv. iron, 232 lbs, 13 92 ; pitchers, 1 doz, 9.00 ; bake dishes, ½ doz, 12 00 ; chambers, 12 doz, 90.00 ; kettles, 6, 12.00.....	427 93
Strathroy Canning Co: Vegetables, 35 doz. cans, 31 60 ; fruit, 22 doz. cans, 50.00 ; poultry, 10 doz cans, 20 00 ; apples, 3 gals, 8.25 ; sundries, 96c.....	110 81
Sifton & Co: Almanacs, 1 doz, 6.00 ; diaries, 13, 13.00 ; postage stamps, 171.50 ; subscriptions, magazines, etc, 59.60	250 10
Strong, W. T. & Co: Drugs and chemicals, 427 18 ; chloride lime, 50 lbs, 6.00 ; soap, 3.60 ; marking ink, 3 qts, 19.20 ; hair brushes, 2 doz, 18 00 ; baking powder, 41 doz, 123.00 ;	596 98
Smith, W. E: Wheelbarrows, 2, 6 00 ; Smith, W J. & Son: Interments, 81.00	87 00
Sundry Newspapers: Subscriptions, 32.00 ; Advt'g re supplies, 147.75 ; re fuel, 204.50 ;	384 25
Spittal, Sabine & Co: Tweed, 4005 yds, 690.29 ; Shoebottom, J. I: Straw, 9980 lbs, 29.94 ;	720 23
Stevenson, Jno Cleaning chimneys, etc' 63.20 ; Small, E Interment. 25.00	88 20
Trebilcock, J. C: Eggs, 900 doz, 188.04 ; geese. 779 lbs, 62.32 ; cheese, 10092 lbs, 1,184.61 ; turkey, 22 lbs, 2.75	1,437 72
Talbot, A. & Co: Library catalogues, 800, 35.00 ; printing, etc, 17.15	52 15
Tyler, Alfred: Tea 3104 lbs. 739 82 ; Taylor, Geo. & Son: Iron, hardware, e c, 21.10...	760 92
Trebilcock, Thos: Rent of 235 acres of land, 225.00 ; Tennent, J.H , V.S: medicines, 54.00 ;	279 00
Woods, J. C: Cups and saucers, 51 doz. 39 00 ; assorted plates, 28½ doz, 22.90 ; soup plates, 15 doz, 11.25 ; pitchers, 4½ doz, 18.00 ; tumblers, 40 doz, 28.00 ; chinaware, 47.61 ; bowls, 18 doz, 15.00 ; linen, 13 yds, 7.15 ; platters 1½ doz, 10.20 ;	199 11
Welford, Bros: Twine, 99 lbs, 17 40 ; brooms, 34 doz, 79 20 ; sundries, 94c..... ...	97 54
Westman, A: Iron, hardware, etc, 19 88 ; hose, 50 feet. 6.25	26 13
Wilkins, W: Lemons, 46 doz, 9 00 ; cranberries, 1 bu, 3.20 ; apples 4 bbls, 12.00 ; oranges, 2 boxes, 8 45 ; sundries, 2.25....	34 90
Walsh, P: Coal oil, 507 gals, 101 84 ; Wickens, A. M: Trav. exp's insp'r of boilers, 24.65 ;	126 49
Watson, Wm: Shoe leather, 355 lbs, 56.00 ; leather and shoe findings, 29.20	85 20
Westcott, Thos: Veal, 117 lbs, 9.36 ; Warwick Bros. & Rutter: Pr'tg and binding, 7.27 ;	16 63
Wilson, Jas. & Co: Spirits for medicinal purposes	66 70
Western Woolen Co: Lining, 29 yds, 23.77 ; overcoating, 2¾ yds, 3.03 ; silesia, 110 yds. 17.11 ; canvas, 360 yds. 45.00 ; buttons, 19.56 ; sundries, 2 30 ; tweed, 1800 yds, 900.75 ; collars, 8 doz, 14.00 ; neckties, 4 doz. 12 00 ; serge, 132 yds, 131.75..	1,179 27
Wall & Guppy: Tobacco, 708 lbs....	262 01
Yeo, A. P: Cups and saucers, 23 doz, 23.75 ; plates, 30 doz, 27 50 ; bowls, 20 doz, 26.00 ; sundries, 8 70 ; vegetable dishes, 25.00 ; bed pans, ½ doz, 10.50 ; tea set, 6.50 ; vinegar bottles, 3 doz, 11.25 ; gas globes, 6 doz, 19 50 ; chambers, 6 doz, 24 00 ; jugs, 1 doz, 6 00 ; cups, 20 doz. 15.00	203 70
Sundry persons: Accounts unenumerated under 10.00.....	93 16

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, KINGSTON.

SALARIES ($26,101.07).

C. K. Clarke, M.D.	Twelve months' salary as	Medical Superintendent		$ 2,000 00
J. M. Forster, M.D.	Six	do	Assistant do	549 96
W. C. Barber, M.D.	Twelve	do	do do	550 04
W. C. Herriman, M.D.		do	do Physician	900 00
W. R. Dick		do	Bursar	1,200 00
A. McLean		do	Steward	600 00
J. McManus		do	Storekeeper	750 00
W. Potter		do	Engineer	740 00
A. Mackie		do	Bursar's Clerk	800 00
J. Dennison		do	Carpenter	550 00
Geo. Watson		do	Tailor	500 00
T. W. McCammon		do	Baker	450 00
W. Carr		do	Gardener	450 00
H. Ross		do	Farmer	500 00
A. W. Arbuckle		do	Musical Instructor	300 00
J. Graham		do	Second Engineer	350 00
Stokers (3)		do		1,087 50
J. Davidson		do	Chief Attendant	400 00
Male Supervisors (7)		do		2,076 00
Male Attendants (16)		do		4,364 45
T. McGuire		do	Butcher	300 00
A. McIver		do	Laundryman	290 00
G. Fralick	One	do	Messenger	18 00
F. Sears	Four and ½	do	do	81 00
J. Kennedy	One and ½	do	do	27 00
D. J. Gibbs	Two	do	do	36 00
Night Watchmen (2)	Twelve	do		612 00
W. Mullin		do	Caretaker Sewage Works	240 00
J. P. Peirce		do	Matron	500 00
T. Gallagher		do	Assistant Matron	300 00
M. Thompson		do	Trained Nurse	240 00
M. Gibson		do	Musical Instructress	192 00
Female Supervisors (6)		do		1,012 75
Female Attendance (13)		do		1,793 64
Cooks (2)		do		289 00
M. Deane		do	Seamstress	120 00
G. Burke		do	Portress	120 00
Laundresses (2)		do		294 70
Maids (4)		do		503 53
W. G. Milligan	Temporary services at $3.00 per week			13 50

EXPENSES ($50,363.46).

Anderson Bros: Tea, 100 lbs, 25.00; eggs, 50 doz, 10 00; extracts, 2 doz, 2.00; sundries, 4.95; bacon and ham, 198 lbs, 26.99; salt, 3 bags, 3.75; salmon, 20 tins, 2.50; sausage, 74 lbs, 7.40 ..... 82 59

Abernethy, A: Boots & shoes, 71.70; Alkenbrack, E: Berries, 630 boxes, 40.59 ..... 112 29

Armstrong, A: Horseshoeing, 8.30; Am Journal of Insanity, vols 57-8-9, 15.00 ..... 23 30

Am. Medico Psychological Assn: Annual dues, 5.00; Booth, A. & Co: Fish, 355.00 ..... 360 00

Boulter, W. & Sons: Vegetables, 66 doz cans, 55.80; fruit, 64 doz cans, 105.60 ..... 161 40

Breck & Halliday: Electric fittings, lamps, etc, 186.31; Barber, W. C: Expenses re transfer from Mimico, 15.90 ..... 202 21

Beham, J. J: Inspection of scales, 8.00; Brown, Jno: Lime, 485 bu, 87.30 ..... 95 30

Bell Telephone Co: Messeges, 13.00; repairs, 6 50 ..... 19 50

Bursar: To pay sundries 64 25

Crawford, Jas: Butter contract, 11,529 lbs at 18c, 2,075.22; syrup, 3,581 lbs, 125.29; cheese, 143 lbs, 14 62; biscuits, 3.60; soap, 4 00; sugar, 4,963 lbs, 184.08; sundries, 2.00; dried apples, 142 lbs, 10.65; prunes, 270 lbs, 17.30; tea, 687 lbs, 171 75; eggs, 275 doz, 44.30; berries, 13.32; starch, 247 lbs, 14.82; beeswax, 12 lbs, 3.60; apples, 12 bbls, 12 00 ..... 2,696 55

Crumley Bros: Ticking, 448 yds, 105.30; blankets, 13, 27.50; shirting, 795 yds, 94.69; spools, 96 doz, 61.92; satin, 30 yds, 7.50; handkerchiefs, 12 doz, 12.00; buttons, 4 gro, 5.50; flannel, 100 yrds, 25.00; canvas, 100 yds, 15.00; sundries, 33.20; crash, 50 yards, 5.00; drill, 60 yds, 9 00; sheeting, 36 yds, 14.40; butter cloth, 363 yds, 18.15; yarn, 150 lbs, 48.75 ..... 482 91

Couper, D: Tea, 840 lbs, 210.00; sugar, 4 147 lbs, 153.48; dried apples, 100 lbs, 8.00; prunes, 100 lbs, 6.25; extracts, 2 doz, 5.00; bath bricks, 2 doz, 1.00; biscuits, 141 lbs, 7.05; cocoanut, 15 lbs, 3.75; cocoa, 12 lbs, 7.20; starch, 129 lbs, 9.03; gelatine, 1 doz, 1.50; baking power, 12 lbs, 6.00; chocolate, 6 lbs, 2.40 ..... 420 66

Craig, W. G. & Co: Sugar, 7324 lbs, 263.09; syrup, 9,896 lbs, 370.24; tobacco, 368 lbs, 159.38; currants, 214 lbs, 13.38; raisins, 201 lbs, 13.89; table salt, 12 bags, 4.80; laundry starch, 300 lbs, 16.75; asstd peel, 41 lbs, 5.17; sal soda, 375 lbs, 3.75;

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, KINGSTON.—*Continued.*

EXPENSES.—*Continued.*

salt, 12 bbls, 15.00 ; blueing, 14 lbs, 1.68 ; clay pipes, 2 boxes, 1.80 ; mustard, 100 lbs, 12.50 ; vinegar, 83 gals. 16.60 ; prunes, 670 lbs, 34 88 ; dried apples, 278 lbs, 18.07 ; baking powder, 34 lbs, 15.25 ; pepper, 50 lbs, 8.50 ; pails, 2 doz, 3.60 ; rice, 500 lbs, 16 25 ; brooms, 28 doz, 70,60 ; sundries, 10.68 ; starch, 200 lbs, 11.50 ; vinegar, 43 gals, 8.60 ; canned fruit, 24 doz cans, 37.60 ..... $1,133 56

Corbett, Jno: Cement, 13 bbls, 39.00 ; kalso brushes, 1 doz, 17.10 ; horse blanket, 4.50 ; razors, shears, etc , 12.00 ; hardware sundries, 24.68 ; shovels, ½ doz, 4.25 ; wire nails, 2 kegs, 7.00 ; glass, 16.25 ; whiting, 340 lbs, 5.10..... 129 88

Chown, A. & Co: Iron, 321 lbs, 8.43 ; iron, hardware, etc, 5.59 ; rugs, 3, 7.75 ; glass, 4.75 ; boiled oil, 10 gals, 9.00 ..... 35 52

Corrigan, C. J. Hats, 6 doz, 54 00 ; Chambers, H & G: Apples, 9½ bbls, 7.42 ; 61 42

Campbell, Bros: Mitts, 6 doz, 36.00 ; caps, 4 doz, 36.00 ; straw hats, 8 doz, 12.80 ..... 84 80

Chown, A. P: Drugs and chemicals, 7.55 : Can Packing Co: Brawn, 240 lbs. 19.20 ..... 26 75

C. P. Industries: Flannel, 1,003 yds, 251.75 ; braces, 288 prs, 57.60..... 309 35

Crawford, R: Coal contract, soft scgs, 1,913 tons 320 lbs, at 3.60, 6,887.37 ; nut, 1 ton, 4.51 ; hard scgs, 297 tons 200 lbs, at 2 80, 831.88 ; stove, 4 tons, at 5.85, 23,40 ; egg, 13 tons, 1900 lbs, at 5.85, 81.51 ; nut, 26 tons at 5.85, 152.10 ; cannel coal, 9 tons, 69.00 ; hardwood, 2 cords, 12.00 ; kindling, 1½ cords, 6 00 ..... 8,067 77

Connell, J. C., M. D: Professional services, 10.00 ; Can Gen Electric Co: fittings, 21.37; 31 37

Carson Bros: Cracked feed, ½ ton, 11.50 ; Carveth, J. A. & Co: Medical books, 6.00.... 17 50

Chandler & Massey. Appliances, 34.85 ; Carbon Studio: Photo, 5.70... 40 55

Canada Hay Co: Hay, 3065 lbs, 15.32 ; *Can Practitioner & Review*: Sub, 8.00 ..... 23 32

Can. Freeman: Stationery, 63.70 ; Cataraqui Cemetery Co: Interments, 48 00..... 111 70

Corbett, S. S: Interments, 26,00 ; Croft, Geo: Hay, 16 tons, 50.00..... 76 00

Cliff, Joshua: Hay, 11 tons 1140 lbs, 98.32 ; oats, 102 bu, 51.00..... 149 32

Clarke, C.K., M.D: Bal *re* table allowance, 441.96; allowance *re* furniture and furnishings, 96.93 538 89

Campbell, Jas: Postage stamps, cards, etc, 109.00 ; Clarke, H: Eggs, 37 doz, 7.35..... 116 35

Collector of Customs: Duty charges, 5.25 ; C. P. R. Tel Co: Telegrams, 2.64..... 7 89

Clarke, L. H. & Co: Coomings, 4,800 lbs, 23.75 ; Can Express Co: Charges, 12.30... 36 05

Dom Fish Co. Fish, 669.07 ; Dom Tobacco Co: Tobacco, 229 lbs, 95.34 ..... 764 41

Dom Express Co: Charges, 6.65 ; Desbarats & Co: Temperature charts, 1,500, 8.80..... 15 45

Doyle, Jas: Mutton and lamb, 12,220 lbs 954 45

Davidson, J: Admissions of patients to circus, 26.50 ; exps recovering eloper, 7.30 ..... 33 80

Elliott Bros: Closets, 3, 37.50 ; belting, 83 feet, 20.45 ; packing, 5 lbs, 3.00 ; valves, 6, 3.60 ; castings, 9.41 ; gasoline stoves, 3, 18.50 ; white lead, 1300 lbs, 81.50 ; iron, tinware, etc. 86.00 ; iron, 31.87 ; garden tools, 7.05 ; galv. pails, 1 doz, 4.20 ; hose, 200 ft, 30.00 ; lawn mower, 6 50..... 339 58

Elliott, T. C. & Co: Apples, .90 ; plums, 19 baskets, 12.10 ..... 13 00

Fleischmann & Co: Yeast, 252 lbs, 75 60 ; Ford, W: Hay, 8440 lbs, 35.09 ..... 110 69

Fisher Bros: Coomings, 2 tons 1389 lbs, 22.25 ; skimings, 1 ton 711 lbs, 27.11 ..... 49 36

Ferrol Co: Medicines, 9.90 ; Farm Exch Acct: Pork, 2 210 lbs, 132.60..... 142 50

Frontenac Milling Co: Flour, 108 bbls, 378.02 ; bran, 800 lbs, 7.25 ; graham flour, 8.50. 393 77

Ford, Geo: In lieu of meals 72 00

Gilbert, J: Creamery butter contract, 6949 lbs @ 21⅜, 1485.43 ; coffee, 805 lbs, 201.25 ; beeswax, 99 lbs, 33.65 ; coal oil, 180 gals, 37.09 ; tea, 390 lbs, 97.50 ; eggs, 850 doz, 120 30; vinegar, 86 gals, 17.20 ; biscuits, 6.00 ; chicory, 396 lbs, 49.50 ; tobacco, 19½ lbs, 14.62 ; split peas, 12 bags, 30.00 ; rice, 2000 lbs, 70.00 ; sugar, 2875 lbs, 105.53 ; lard, 50 lbs, 6.25 ; sundries, 24.80 ..... 2,299 12

Grant Hamilton Oil Co: Engine oil, 46½ gals, 13.95; paint, varnish, oils, etc, 64.05; sund, 5.50. 83 50

G. T. Railway Co: Freight charges, 57.21 ; G. N. W. Tel Co: Telegrams, 22.47..... 79 68

Garlock Packing Co: Packing, 34 lbs, 40.41 ; valve discs, 4 doz, 4.95 : sheet rubber, 22 lbs, 6.71 ; leather belting, 200 feet, 41.00 ; sundries, 14.64 ..... 107 71

Graham, F: Hay, 8 tons, 65.53 ; George, C: Oats, 236 bu, 91.24..... 156 77

Greenwood, F: Hay, 15 tons, 1900 lbs, 127,60 ; straw, 4 tons, 1120 lbs, 27.36..... 154 96

Hunt Bros: Bal 1901 flour contract, 155 bbls @ 3.37, 522.35 ; 1902 contract, 780 bbls @ 3.48, 2,714.40..... 3,236 75

Hiscock, J: Tea, 800 lbs, 200.00 ; sugar, 4104 lbs, 164.42; berries, 444 boxes, 24.00; fruit, 38.80. 427 22

Hunter, R: Purchase of meat, 5,330.01 ; Hartz, The J. F. Co: Surgical instruments, 39.90. 5,369 91

Hall, David: Water jugs, 2½ doz, 19.80 ; solder, 28 lbs, 7.00 ; castings, 36.43..... 63 23

Harrison, T. F. & Co: Perforated seats, 10 doz, 21.60 ; moss, 50 lbs, 7.50 ; sundries, 1.40; upholstering, 85.06 ; mirror, 3 00 ; fibre, 280 lbs, 22.40..... 140 96

Hogan, W: Horseshoeing, 21.18 ; Harkness, W: Beef, 9826 lbs, 767.36..... 788 54

Hentig, S. A: Postage stamps, 106 00 ; Industries Acct: Scrub brushes, 49 doz, 107.00... 213 00

Jenkins, E. P: Bath robes, 3, 10 50 ; Kirkpatrick, M: Picture moulding, 17.54..... 28 04

K.P.&C. Electric Ry.Co: Car tickets, 82.00 ; Kennedy, Jas: Wages tempy messenger, 11.60 93 60

Livingstone, C. & Bros: Tweed, 220 yds, 110.13 ; canvas, 75 yds, 11.25 ; underwear, 2 doz, 12.00 ; jackets, 2, 2.50 ; neckties, 18 doz, 27.00 ; serge, 47 yds, 122.20 ; suits, 130, 617.50 ; trousers, 35 prs, 52.50..... 955 08

Laidlaw, Jno. & Son: Rugs, 4, 10.00 ; sateen, 106 yds, 13 20 ; lawn, 357 yds, 40.65 ; muslin, 24 yds, 3.60 ; ribbon, 200 yds, 20.00 ; yarn, 150 lbs, 52.50 ; pillow cotton, 340 yds, 40.74 ; wincy, 260 yds, 32.53 ; table linen, 229 yds, 108.60 ; sundries, 20.59 ; towels, 12 doz, 12.72 ; print, 389 yds, 33.71 ; pique, 48 yds, 7.20 ; scrim, 171 yds, 14.31.. 410

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, KINGSTON.—*Continued.*

EXPENSES.—*Continued.*

Leitch & Turnbull Co. Valve spindles, 3, 10.50 ; valves, 3 00..... $13 50
Lowe, S: Eggs, 242 doz, 36.65 ; Lawless, P. F: brooms, 17 doz, 42.50 ..... 79 15
Leonard, E. & Sons: Rep boiler, 13.60 ; Laturney, Jas. Rep. vehicles, 66.70..... 80 30
Meyer Bros: Soda, 840 lbs, 16.80 ; Massie, W., jr: Pine, 1523 ft, 34.00. ..... 50 80
Mitchell, W. A: Turpentine, 30 gals, 21.50 : beeswax, 20 lbs, 7.00; brushes, 8 95 ; hardware sundries, 21.03 ; glass, 5.00 : paris green, 25 lbs, 6.25..... 69 73
Mullin, E. W: Tea, 102 lbs, 25 50 ; sugar, 898 lbs, 37.28 : pepper, 30 lbs, 5.10 ; mustard, 20 lbs, 3.00 ; sundries, 21.70..... 92 58
Mahood, P. S: Combs, 2½ gro, 30.50 ; sundries, 3.92 ..... 34 42
Mitchell, E. C: Drugs and chemicals, 21.97 ; pipes, 10 doz, 15.00..... 36 97
Mahood, G. W: Drugs and chemicals, 57.52 ; Medley, W. H: Drugs and chem, 17.10.... 74 62
Manning, J. W: Maple syrup, 46 gals, 46 00 ; Marsh Mfg Co: Laundry soap, 427 lbs, 19 22. 65 22
Metcalf, Jas. M: Peaches, 20 bask, 18.00 ; McCambridge, F. A: Buttons, thread, etc, 7.80.. 25 80
McRae, W. R. & Co: Prunes, 400 lbs, 24.00 ; rice, 2000 lbs, 70.00 ; tea, 100 lbs, 25.00 ; coffee, 800 lbs, 200.00 ; corn starch, 40 lbs, 3.40 ; vanilla, 1 doz, 2.75 : spirits for medicinal purposes, 14 gals, 42.80 ; chicory, 200 lbs, 30.00 ; salt, 4 bbls, 5.40 ; molasses, 1 bbl, 18 25 : tobacco, 240 lbs, 93.60 ; eggs, 115 doz, 16.10 ; syrup, 637 lbs, 19.11 ; sugar, 658 lbs, 21.72 ; sundries, 8.20..... 580 33
McFaul, R: Blankets, 35 pr, 70.00 ; linen, 544 yds, 163.20 ; table covers, 1 doz, 11.50 ; muslin, 150 yds, 17.50 ; sash net, 36 yds, 9 00 ; crash, 240 yds, 23.16 ; pillow cotton, 330 yds, 43.87 ; carpet, 42 yds, 52.19 ; sundries, 20.31 ..... 410 73
McKay, John: Shoe leather, 405 lbs, 124.67 ; thread, nails, rivets, etc, 10.56 ; 135 23
McKelvey & Birch: Castings, 13 lbs, 5.20 ; iron, tinware, etc, 55.43 ; dessert knives, 4 doz, 12 00 ; fire clay, 450 lbs, 4.50 ..... 77 13
McFarland, M. S: Hay, 34 tons, 620 lbs, 281.74 ; straw, 3¼ tons, 19.65 ; seed oats, 64 bu, 35.52 ; oats, 317 bu. 142.94..... 479 85
McGuire, T: Geese, 95 lbs, 8.55 ; eggs, 71 doz. 10.65 : exp. *re* purchase of sheep, 19.00. 38 20
McParland, Jas: Spirits for medicinal purposes, 42.90; McLeod, J. B: Drugs and Chem, 595.62. 638 52
McLean, T. W: Services taking stock, 52.00 ; trav expenses, 6 40..... 58 40
Nisbet, F: Stationery, etc., 49.96 ; toilet paper, 1 case, 8.00..... 57 96
Northey Co: Repairs to pump, 7.00 ; Nicholson, Thos: Corned beef, 14,040 lbs, 842.40.. 849 40
Nordheimer Piano Co: Sheet music, 10.10 ; O'Brien, Alex. Serge, 15 yds 28.50..... 38 60
Oldreive & Horn: Repg, elevator, 22.40 ; rope, twine, etc, 14.04 ..... 36 44
Orser, H. C: Veal, 1,494 lbs, 74.70 ; Pense, E. J. B: Printing, advtg, etc, 45 50..... 120 20
Pugsley, Dingman & Co: Laundry soap, 2,031 lbs, 91.40 ; toilet soap, 35 boxes, 64.00.... 155 40
Pollie, J: Boilers, ½ doz, 18.00 ; galv. pipe, 140 lbs, 11.20 : dippers, 4, 5.00 ; saucepans; 6, 6.00 ; labor, 148.50 ; iron, tinware, etc, 31.98 ; coffee cans, ½ doz, 12.60 ; dust pans, 1 doz, 4.20 ; milk pails, 4, 3.60 ; charcoal, 16 bush, 3 20 ..... 244 28
Pelow, Thos. H: Tea, 360 lbs, 90.00 ; blacking, 12 doz, 9.36 ; salt, 4 bbls, 5.00 ; wash soda, 375 lbs, 5.63 ; brooms, 6 doz, 15.00 ; corn starch, 80 lbs, 6.40 ; rice, 500 lbs, 17.50 .. .. 148 89
Prevost, Z: Tweed, 508 yds, 253.87 ; Peters, Wm. P: Graham flour, 2 bbls, 8.00..... 261 87
Queen City Oil Coy: Cylinder oil, 179 gals, 96.50 ; boiled oil, 88 gals, 69.58 ; electric oil, 42 gals, 17.59: turpentine, 242 gals, 157.78 ; tanks, 2, 11.00 ; sundry oils, 56.67 ; gasoline, 50 gals, 11.90 ; lace leather, 9 lbs, 7.40 ; linseed oil, 69 gals, 55.37 ..... 483 79
Redden, Jas. & Co: Balance 1901 creamery butter contract, 550 lbs, at 21½, 118.25 ; balance 1901 dairy butter contract, 500 lbs, at 18½, 92.50 ; balce 1901 potato con 37½ bus, at 32, 12.00; balance 1901 rolled oats contract, 2 bbls, at 3.45, 6.90 ; 1902 rolled oats contract, 76 bbls, at 5 85, 444.60 ; potato contract, 2,660 bushels, at 65, 1,729 08 ; sugar, 1,892 lbs, 68 17 ; coffee, 1,299 lbs, 324 75 ; eggs, 769 doz, 138 24 ; cheese, 577 lbs, 60 86 ; tobacco, 230 lbs, 85.10; turkeys, 421 lbs, 38.30 ; chickens, 363 lbs, 20.43 ; geese, 69 lbs, 4.83 ; figs, 809 lbs, 42.24 ; biscuits, 70.39 ; sundries 59.28 ; dried apples, 470 lbs, 32.90 ; evap apples, 200 lbs, 20.00 ; split peas, 6 bbls, 29.80 ; barley, 14 bbls, 67.70 ; matches, 4 cases, 18.00 ; bacon and ham, 31 lbs, 4.47 ; cocoa, 11 lbs, 5.50 ; chocolate, 12 lbs, 4.80 ; starch, 200 lbs, 16.00 ; fish, 13 doz cans, 21.85 ; extracts, 2½ doz, 6.25 ; beeswax, 59 lbs, 18.70 : tea, 90 lbs, 22.50; prunes, 100 lbs, 5 50 ; apples, 21 bbls, 28 60 ..... 3,618 49
Rees, E. R: Veal, 5,835 lbs, 350 10 ; beef, 16,700 lbs, 1,002.00..... 1,352 10
Rees, A. J: Grapes, 76 baskets, 19.15 : peaches, 7 baskets, 7.60 ; pears, 2 bbls, 9.00 ; oranges, 2 cases, 10 00 ; candy, 156 lbs, 20 00 ; nuts, 130 lbs, 20 00 ; raisins, 1 box, 5.00 ; fancy boxes, 650, 7.80 ; sundries, 14.15 ; berries, 23.37 ; plums, 21 baskets, 12.90.. ..... 148 97
Robertson Bros: Chambers, 30 doz, 135 00 ; cups and saucers, 18 doz, 18.00 ; bowls, 18 doz, 24 60 ; gem jars, 7 doz, 25 90 ; chinaware etc, 51 13 ; basins, 2 doz, 12 00 ; ewers, 2 doz, 12.00 ; veg, dishes, 2 doz, 14 00 ; dinner plates, 6 doz, 6.00 ; tea plates, 12 doz, 10 50; tumblers, 12 doz, 10.50; lanterns, ½ doz, 4.20; platters, 2 doz, 11.65. 335 48
Rathbun Co: Pine, 6,594 ft, 132 92 ; cedar, 2,083 ft, 56 37 ; hemlock, 5,230 ft, 71 03 : maple, 2,470 ft, 62.99 ; dressed lumber, 3,133 ft, 94.79 ; basswood, 2 434 ft, 85.19 ; picture m'ldg, 1000 ft, 20 00 ; birch, 2,053 ft, 102.65 ; shingles, 23.63; sundries, 34.40;... 683 97
Reid Jas: Furniture & upholstering..... 30 64
Richards, D: Toilet soap, 75 boxes, 150.00 : laundry soap, 11,400 lbs, 456 00..... 606 00
Routley, Jno: Athletic goods, 12.75 ; Roberts, Chas: Medical books, 9.00... ..... 21 75

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, KINGSTON.—*Continued.*

EXPENSES.—*Continued.*

Reyner, Jno: Tuning & repg, pianos, 25.00 ; Ross, Mrs: Eggs, 72 doz, 12.38	$37 38
Steacy & Steacy: Blankets, 21 pr, 45.40 ; muslin, 1,104 yds, 138.67 ; silkoline, 103 yds, 14.42 ; denim, 54 yds, 8.68 ; sheeting, 2,295 yds, 681.24 ; wrappers, 14, 11.50 ; towelling, 292 yds, 26.37 ; duck, 261 yds, 42 95 ; shirting, 497 yds, 62.09 ; pillow cotton, 576 yds, 73.88 ; print, 698 yds, 69.78 ; towels, 8 doz, 12.00 ; cottonade, 77 yds, 11.52 ; table linen, 183 yds, 82.46 ; silesia, 53 yds, 10 60 ; flannel, 18 yds, 5.40 ; hessian, 54 yds, 8.64 ; socks, 25 doz pr, 15 00 ; quilts, 25, 32.80; cotton, 1,315 yds, 83.42; gingham, 561 yds, 64 60; canvas, 75 yds, 11 25; sundries, 22 32	1,534 99
Strathroy Canning Co: Vegetables 20 doz cans, 17.57 ; fruit, 12 doz cans, 18.00 ; chicken soup, 4 doz cans, 5.00 ; poultry, 2 doz cans, 5.00	45 57
Strachan, A: Iron, hardware, etc, 74 13 ; nails, 5 kegs, 19 00 ; screws, 52 grs, 17.60 ; locks, 6, 7.50 ; moss, 50 lbs, 7.50 ; files, 5 doz, 8.50 , sofa twine, 10 lbs, 3.00 ; white lead, 400 lbs, 28 00 ; glue, 25 lbs, 7.50 ; belting, 20 ft, 7.50; garden tools, 7.98 ; shingle stain, 5 gals, 7.00 ; sofa springs, 1 gro, 6.00	201 21
Starr & Sutcliffe Cotton, 3,253 yds, 200 78 ; cheese cloth, 140 yds, 6.30 ; blankets, 1 pr, 2.25 ; sundries, 23.84 ; butter cloth, 286 yds, 12.87 ; bed spreads, 50, 62.50 ; needles, 3.44	311 98
Sundry Newspapers: Advertising *re* supplies, 107.75 ; *re* fuel, 189.50	297 25
Selby & Youlden: Boiler repairs, 29.46 ; labor, 50.86.	80 32
Short, Jas: Taking patients to Fair, 10.00 ; Slavin, Jas: Clothing, 66 00	76 00
Staley, Fred: Hay, 6,380 lbs, 23 92 ; Steele Briggs Seed Co Seeds, etc, 41.97	65 89
St. Mary's, R.C Cemetery: Interments, 20.00 , Thompson, Geo: Seeds, etc, 129.93	149 93
Toye, R. H: Lemons, 61 doz. 13.15 ; sweet potatoes, 1 bbl, 3 50 ; fruit, 9.75 ; plums, 20 baskets, 8.50 . pineapples, 6 doz, 9.90 ; peaches, 8 baskets, 6.00	50 80
Troy Laundry Machy, Co: Laundry supplies, 21.35; Tweddell, Jno: Tweed, 419 yds, 209 50.	230 85
Uglow, R. & Co: Stationery, 96.22 ; blank books, 17.10 ; playing cards, 7 50 ; subs, 41.00	161 82
Wickens, A.M: Trav, exps, *re* insp't'n boilers, 17.30; Wormwlth Piano Co: Sheet music, 30.90.	48 20
Walsh, M Mutton, 3,780 lbs, 283.50 ; beef, 12,585 lbs, 1,084.15	1,367 65
Wingate Chemical Co: Medical appliances, 8.26 ; Waddington, H: Veal, 120 lbs, 7.50	15 76
Wards Natural Science Establishment: Surgical appliances	20 50
Wade, Henry Drugs and chemicals, 61 05 ; Warwick Bros. & Rutter: Stationery, 52.72	113 77
Sundry persons: Accounts unenumerated under 10.00	101 50

ASYLUM FOR INSANE, HAMILTON.

SALARIES ($34,962 27).

Jas. Russell, M.D	Twelve months'	salary as	Medical Superintendent	$2,000 00
T. W. Reynolds, M.D	Five and ½	do	Assistant do	504 13
F. Beemer, M.D	Six and ½	do	do do	595 87
Jno. Webster, M.D.	Twelve	do	First Assistant Physician	1,000 00
W P. St. Charles, M.D	Seven	do	Second do	466 62
W. T. Wilson, M.D	Five	do	do do	375 00
Luther E. Swazie	Twelve	do	Porter and Gate Keeper	299 97
Bidwell Way		do	Bursar	1,400 00
A. Murray, Jr		do	Bursar's Clerk	800 00
Daniel McCarthy		do	Storekeeper	1,050 00
L C. McIntyre.		do	Assistant Storekeeper	600 00
Jas. Martin		do	Baker	450 00
Wm. Harper		do	Butcher	360 00
Jno. LaMarsh	Eleven & ½	do	Messenger and Stableman	230 00
Jas E. Tice	One	do	Stableman	20 00
Jas. E. Betler	Eleven	do	do	220 00
Jno. Marter	Nine	do	Engineer.	534 70
Wm. Omand	Six	do	First Assistant Engineer	183 43
Jos. Ironside	Twelve	do	Second do	367 92
Thos. Lawlor	One	do	do do	20 83
Stokers (5)	Twelve	do		1,107 18
Nathaniel Reed		do	Carpenter	550 00
Wm. Addison		do	Assistant Carpenter.	500 00
Wm Gatenby		do	Tailor	550 00
A. A. Adams	Eleven	do	Shoemaker	275 00
Wm. Scott	Twelve	do	Laundryman	390 00
Thos. McQueen		do	Farmer.	600 00
Nicholas Elliott		do	Plowman	276 00
Farm hands (2)		do		414 00
Andrew Goodall		do	Gardener.	500 00
W. S. Scott		do	Assistant Gardener	360 00
Jno. Moffatt	Four and ½	do	Nightwatchman	136 85
Jessie S. Watson	Twelve	do	Matron	500 00
Lillie Jones		do	Assistant Matron	300 00
M. McKentry		do	Second Assistant Matron	240 00

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, HAMILTON.—*Continued*

SALARIES.—*Continued.*

Maud Gill	Five months'	salary as	Trained Nurse	$100 00
Cooks (8)	Twelve	do		1,111 82
Housemaids (4)		do		275 74
Laundresses (4)		do		530 57
Seamstresses (2)		do		254 06
A. M. Ferrier	Eight	do	Chief Female Attendant	164 66
A. E. Porter	Four	do	do	73 33
Annie Kelly	Twelve	do	Stenographer	312 00
Female Supervisors (10)		do		1,752 50
Female Attendants (27)		do		3,493 51
Jas. Slater		do	Chief Attendant (M.B.)	450 00
Jas. Thompson		do	do (O.H.)	340 00
Male Supervisors (9)		do		2,582 00
Male Attendants (25)		do		5,344 58

EXPENSES ($89,907.23).

Aitchison, D. & Co.: Lumber, 18,955 ft., 402.04; sundries, 6.16 ..... 408 20
Am. Medico Psychological Ass'n: Annual dues, 5.00; Armstrong Cartage Co.: Cartage, 7.75 ..... 12 75
Allen, S.: Vinegar, 165 gals., 33.06; barrels, 4, 8.00 ..... 41 06
Ballentine, Adam & Bros.: Eggs, 2,977 doz., 425 02; poultry, 5.47; biscuits, 2.54; sundries, 45.92; fruit and vegetables, 27 88; veal, 184 lbs. 18.61 ..... 525 44
Balfour & Co.: Evap. apples, 3,169 lbs., 226.80; tea, 2,510 lbs., 627.50; fine salt, 18 bbls, 22.90; coarse salt, 30 sacks, 27.20; prunes, 3,000 lbs., 225.00; sal soda, 750 lbs., 9 38; cod fish, 490 lbs., 50.20; sugar, 29,461 lbs., 1,110 57; tapioca, 230 lbs., 11.50; soap, 1 bbl., 3.85; canned fruit, 42 doz. cans, 79.80; tomatoes, 8 doz. cans, 8.80; rice, 2,100 lbs., 75.00; laundry starch, 241 lbs., 14 46; tobacco, 300 lbs., 117 00; blueing, 24 lbs., 4 32; corn starch, 40 lbs., 3 00; currants, 585 lbs., 39.49; pickles, 16 50; raisins, 280 lbs., 24 50; syrup, 104 gals., 46 80; sundries, 14 40 ..... 2,758 97
Brennen, The M. & Sons Mfg. Co.: Pine, 4,430 feet, 86.43; posts, 150, 25.50; sundries, 1.50 ..... 113 43
Brown, E. & Co.: Cracked wheat, 1 ton, 40 00; lobsters, 8 doz. cans, 30.00; split peas, 8 bbls., 48 00; peas 6 doz. cans, 5 40 ..... 123 40
Battram & Co.: Fish, 20 523 lbs., 1,460 52; oysters, 2.10; herring, 15.05; sundries, 3.50 ..... 1,481 17
Beemer, F., M.D.: Expenses *re* transfer from London 4 10
Browne, E. & Son: Freight charges 6 65
Beardmore & Co.: Shoe leather, 2,456 lbs., 574 89; hard ash, 4 lbs., 32 00; belt roundings, 151 lbs., 25.67; awls, thread, tacks, etc., 95.82; top lifts, 20 doz., 17.00; insoles, 20 doz., 30 00; carpet, 64 yds., 28.80; tweed, 33 yds., 11.73; duck, 52 yds, 8.32; russets, 6 doz., 42.30 ..... 866 53
Bell Telephone Co.: messages 8 00
Bursar: To pay sundries, 56.19; Canada Biscuit Co. Ass'td jam, 3,878 lbs., 252.07 ..... 308 26
Connal, Peter & Son: Tobacco, 258 lbs., 104.34; rice, 1,250 lbs, 43 75; coffee, 300 lbs., 75.00 ..... 223 09
Carpenter, F. A. & Co.: Hose, 575 ft., 82.55; mirror, 4.45; knives and carvers, 10 00; japan, 5 gals., 5.00; nails, 3 kegs, 8.65; sash cord, 24 lbs, 7.20; glue, 10 lbs., 3.00; iron, hardware, etc., 32. 76; picture hooks, 12 doz., 7.50 ..... 161 11
Clark, Adam: Castings, 40 48; pipe cut and threaded 23 68 ..... 64 16
Carbon Studio: Photo, 5.50; Chilman, R. E.: Candles, 174 lbs., 33 96 ..... 39 46
C. P. Industries: Flannel, 2 400 yds., 760.67; bed springs, 25. 51 60; beds, 12, 90.00; sundries, 4.90; binder twine, 300 lbs., 33.75; blankets, 760 pr., 166.00 ..... 1,106 92
Clarke, Jno. A.: Drugs and chemicals, 18 40; dyes, 40 45; parafine wax, 322 lbs., 41 50; extracts, 26 lbs., 19 15; sundries, 4.50 ..... 124 00
Cloke, J. G.: Subscriptions, 80.55; postage stamps, 37.00; stationery, 16 00 ..... 133 55
Cook & Reid: Printing and advg, 13.25; Copeland-Chatterson Co: Binder, leaves, etc, 20.78 ..... 34 03
Cook, Adam & Co: Blank books, 9 00; printing, 4.00 ..... 13 00
Can. Express Co'y: Charges, 5.30; C.P. Railway Co: Freight charges, 14 57 ..... 19 87
Dixon Bros: Cranberries, 2 bbls, 21.00; oranges, 140 doz, 28.00; figs, 11 boxes, 11.00; mixed nuts, 174 lbs, 19.88; berries, 99.82; sundries, 5 86; lemons, 4.00; cherries, 25 baskets, 25 10 ..... 214 66
Dickson, A. G: Crash, 642 yds, 64.25; towels, 4 doz, 8 00; towelling, 219 yds, 21 90; cotton, 856 yds, 67.53; sheeting, 626 yds. 140.85 ..... 302 53
Dominion Metallic Packing Co: Sheet rubber, 70 lbs. 30.77; asbestos, 10 lbs, 5 00 ..... 35 77
Dodsworth, A. H: Interments, 25.00; Donohue & Bradley: Tobacco stems, 8.00 ..... 33 00
Duncan, Robt, & Co: Postage stamps, 75 50; stationery, 75 42; wall paper, 13.13; bibles, hymn books, etc, 17.10; playing cards, 2 doz packs, 4 69; diaries, 4, 4 00 ..... 189 84
Dom. Express Co: Charges, 6.00; Dundas *True Banner* Printing, etc, 38.75 ..... 44 75
Electric Supply Co: Elec. fittings, etc, 63 61; Evans, Robt, Seed Co: Seeds, bulbs, etc, 151.18 ..... 214 79
Elliott, N: Evergreens, etc, 4 04; in lieu of meals, 66.64 ..... 70 68
Edmison, H. H: Drugs and chemicals 28 85
Fairgrieve, J. B. & Co: Coal contract—Cannel, 36 tons 720 lbs, at 6.50, 236.34; soft slack, 66 tons 1,240 lbs, at 3.00, 199.86; hard slack, 43 tons 1,650 lbs, at 2 25, 98.60; egg, 29 tons 1,600 lbs, at 5.00, 149.00; smithing, 1 ton, 5 75 ..... 689 55

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, HAMILTON.—*Continued.*

EXPENSES.—*Continued.*

Fraser, David: Rolled oats, 5 sacks, 9.00; cracked wheat, 5 sacks, 7.75; sundries, 2.50; potatoes, 1,749 bush. 962 07; corn meal, 6 bbls, 23.90 ..... $1,005 22
Farm Exchange Acct: Tallow, 2,400 lbs, 140.80; Frid, Geo. & Co: Brick, 1,000, 7 00 ..... 147 80
Finch Bros: Yarn, 1,033 lbs, 450.12; shirting, 1,788 yds, 276 91; galatea, 253 yds, 38.53; frilling, 10 doz 10.25; sundries, 75c; cheese cloth, 402 yds, 37.46 ..... 814 02
Ferrol Co: Ferrol, 6 doz 19 80; Foster, S. P & Co: Flower pots, fern pans, etc, 74.13.. 93 93
Gerrie, J. W: Baking powder, 325 lbs, 81.25; Gerrie, Alex: Apples, 59 bbls, 234.75.... 316 00
Gordon, Jno. S: Turkeys, 2,082 lbs, 208.20; geese, 621 lbs, 52.78; ducks, 8 pr, 7.20; chickens, 8 pr, 6 00 ..... 274 18
Gordon Bros: Lard, 240 lbs, 30.00; hams, 345 lbs, 47.07 ..... 77 07
Gunn, D. Bros. Co: Cheese, 2,444 lbs, 270.17; Gripton, C Indelible ink, 2 qts, 17.60.... 287 77
Glassco, G. F. & Co: Hats, 52½ doz, 106 59; caps, 14 doz, 65.25 ..... 171 84
Greening, The B. Wire Co: Wire fencing, 13.71; rep'g wire guard, 3.75 ..... 17 46
Gurney Foundry Co: Repairs to range, 31.07; grate bars, 21.00..... 52 07
Grant's Spring Brewery Co: Malt, 4 bush, 8.00; hops, 11 lbs, 4.40 ..... 12 40
Guest, E. J: Lime, 12.75; Green Bros: Interments, 25.00..... 37 75
Good Roads Machinery Co: Rep'g engine, boiler, etc, 92.97; grate bars, 462 lbs, 18.48 111 45
Grossman's, P. Sons: Rep'g musical instruments, 6.77; sheet music, 11.00..... 17 77
G. T. Railway Co: Freight charges, 63.94; G. N. W. Tel. Co: Telegrams, 4.97 ..... 68 91
Hamilton Coffee & Spice Co: Coffee, 1,200 lbs, 300.00; pepper, 80 lbs, 16.80; cocoanut, 15 lbs, 3.00 ..... 319 80
Hamilton Cemetery Board: Interments, 27.50; Hamilton Water Works Co: Water, 3,515.87 3,543 37
Hamilton Gas Light Co: Gas, 358.10; repairs, 16.55 ..... 374 65
Hamilton & Barton Incline Ry. Co: Tolls as per agreement 240 00
Hamilton Electric Light & Power Co: Electric light, 3,785.58; repairs, 3.00 ..... 3,788 58
Hamilton Vinegar Works: Vinegar, 199 gals, 42.20; Hunter, R: Purchase of meat, 12,169.85 12,212 05
Hamilton, W. H: Prunes, 2,000 lbs, 145.00; vinegar, 84 gals, 25.00; cheese, 865 lbs, 95.15 265 15
Henry & Co: Brooms, 10 doz, 30.00; soap, 210 lbs, 26.25; laundry starch, 200 lbs, 11.00; salmon, 8 doz. cans, 12.00; sardines, 1 case, 22.00; tomatoes, 6 doz. cans, 5.40; molasses, 1 bbl, 12.48; sugar, 3,154 lbs, 116 69; cracked wheat, 800 lbs, 22.40; tea, 373 lbs. 93.25; dried apples, 64.58 ..... 416 05
Hall, Richard & Son: Counterpanes, 240, 211.20; Howell Litho Co: Lithographing, 20.75 231 95
Hall, Adam: Valves, 46.15; castings, etc, 33.17..... 79 32
Herald, Jos: Tuning and rep'g pianos, 14.00; Harte & Lyne: Duty charges, 81.70.. 95 70
Hamilton Steamboat Co: Freight charges, 16.29; Jeffery, David: Honey, 2,633 lbs, 247.00 263 29
Junor, Robt: Glassware, etc, 9.75; dinner set, 30.00; tumblers, 2 doz, 6.00 ..... 45 75
Knox, Morgan & Co: Tooth brushes, 3 doz. 6 00; pipes, 6 doz, 11 97; hoods, 3½ doz. 13.50; scarlet cloth, 3 yds, 11.25; tape, 1 gt. gro, 11 50; cotton thread, 24 gro, 129.60; table covering, 6 pcs, 13.50; cottonade, 1,499 yds, 284 21; cotton, 5,817 yds, 439.91; buttons, 73.80; linen thread, 6 lbs, 13.50; tabling, 941 yds, 817.13; hessian, 391 yds, 87.97; sheeting, 855 yds, 177.89; italian, 27 yds, 17.88; canvas, 50 yds, 7.50; towelling, 1,074 yds, 97.96; ticking, 434 yds, 82.55; oil table cloths, 9.00; tweed, 588 yds, 297.22; serge, 107 yds, 241 87; flannel, 62 yds, 10.85; sundries, 13.74 ..... 2,870 30
Kerr, A. R. & Co: Handkerchiefs, 10 doz, 13.70; aprons, ½ doz, 3.75. ribbon, 91 yds, 13 18; elastic, 18 yds, 4 50; hose, 24 pr, 8.40; lace caps, ½ doz, 9.00; net muslin, 30 yds, 7.50; ties, 32 doz, 8.00; shawls, 3, 3.75; collars, 4.08; garter clasps, 18 pr, 4.50; sundries, 30.71; pillow cotton, 124 yds, 22.96; towels, 14 doz, 35.10; cotton, 602 yds, 46.66; sheeting, 60 yds, 18.60; napkins, 1 doz, 4.75 ..... 239 14
Kingston Asylum: Scrub brushes, 12 doz, 27.00; Kraft, E: Harness supplies, 22.25.... 49 25
Kilvington, Thos: Palms, 70, 153 20; boston ivy, 100, 10.00..... 163 20
Lees, Thos: Spectacles, 6 doz. 21.60; rep'g clocks, etc, 6.50 ..... 28 10
London Ammonia Co: Powder ammonia, 987 lbs, 59.22; Lynch, Jas: Drugs and chem'ls, 31.20 90 42
Lalor, The F. R Canning Co: Peas, corn, etc, 46 doz. cans 40 70
Myles', Thos. Sons: Balance 1901 coal contract—soft, 11 tons 1.520 lbs, at 3.66, 43 07; hard screenings, 24 tons 1,720 lbs, at 2.09, 51.96 ..... 95 03
Mason, E. F. & Co: Coffee, 700 lbs, 175 00; Maguire, A. W: Split peas, 9 bags 20.25 195 25
Matthews, The Geo. Co: Bacon and hams, 1,852 lbs, 256.74; lard, 900 lbs, 110 50; sundries, 3.35..... 370 59
Malcolm & Souter: Linolenm, 33 yds, 31.75; folding tables, 24, 48 00; parlor suite, 30.00; carpet, 144 yds, 164 41; upholstering, 70.70; enamel bed, 12.00; furniture, 61.00; sundries, 10 14 ..... 428 00
Moore, The D. Co: Fire screens, 3, 9.00; kitchen utensils, 38.87; hardware, etc, 23.70 71 57
Murray, Jno: Shirts, 18, 18.00; ties, 7 doz, 21.50; collars, 6 doz, 9.00; handkerchiefs, 9½ doz, 7.13; mufflers, 1 doz, 5 25; braces, ½ doz. pr, 1.50 ..... 62 38
Malcolm, Jno. & Son: Butter con't—32,372 lbs, at 21½c, 6,959.98; cheese, 1,332 lbs, 146.52 7,106 50
Morris, Thos. S: Bran, 31¾ tons, 460.49; chop corn, 4 tons, 105.50; cracked wheat, 2½ tons, 75.30 ..... 641 29
Meriden Britannia Co: Peppers, mustards and vinegars, 5 doz..... 15 90
Magee-Walton Ice & Coal Co: Ice, 913 tons 680 lbs 593 67
Mitchell, F. J. R: Rice, 2,600 lbs, 91.00; Mack, Jno: Drugs and chemicals, 818.77.. 909 77
Murray, A. jr: Extra work during bursar's illness 100 00

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, HAMILTON.—*Continued.*

EXPENSES.—*Continued.*

Macpherson, Glassco & Co: Prunes, 6,450 lbs, 427.87; raisins, 8 boxes, 22.52; syrup, 35 gals, 14.03; common salt, 35 bbls, 42 00; dried apples, 1,069 lbs, 73.15; sugar, 18 240 lbs, 643.02; pot barley, 12 bbls, 51 00; tobacco, 570 lbs, 222.30; starch, 240 lbs, 14.40; mustard, 36 lbs, 16.20; tea, 1,325 lbs, 331.25; sal soda, 1,500 lbs, 15.00; coarse salt, 20 bags, 16 40; codfish, 849 lbs, 67.26; rice, 2,259 lbs, 84.71; borax, 50 lbs, 3.00; salmon, 4 doz cans, 5.80; corn starch, 80 lbs, 5.80; laundry starch, 100 lbs, 5.75; blueing, 24 lbs, 4 32; chow chow, 5 doz, 18.75; sundries, 18 13; syrup, 1,864 lbs, 65 24; molasses, 48 gals, 13.42; gelatine, 3 doz, 5 25; currants, 846 lbs, 54.99; tapioca, 120 lbs, 5.40 ..... $2,246 96

McIlwraith, Thos Special coal contract, mine run, 99 tons 1,270 lbs, at 4.33..... 431 40

McColl Bros. & Co: Cylinder oil, 85 gals, 55 25; signal oil, 89 gals, 75.65..... 130 90

McLaughlin, M. & Co: Flour contract, 1,522½ bbls, at 3 55 ..... 5,404 88

Macdonald, H S. Drugs and chemicals, 36.02; McCoy, Wm: Blacksmithing, 15 50 ..... 51 52

McFarlane, Alex: Chopped peas, 12 tons 1,119 lbs, 273.69; chop corn, 2 tons, 78.86; split peas, 6 bbls, 27.00 ..... 379 55

McQuarrie, Jas J: Eggs, 629 doz, 149.55; fruit jars, 57.65; peaches, 4 bu, 4.20; cheese, 289 lbs, 33.31; poultry, 29 20; sundries, 76.09..... 350 00

McKelvey & Birch: Rpg. boiler, 18 75; Nugent, Jno: Drugs and chemicals, 34.70..... 53 45

Osborne, Jas. & Son: Eggs, 1,158 doz, 290.21; poultry, 39.25: coal oil, 25 gals, 5.50; fruit and vegetables, 62.24; sundries, 79.85; meat, 19 38; glassware, 26.15..... 522 58

Parnell, E., jr: Balance 1901 flour contract, 36 bbls, at 3.42, 123.12; rolled oats, contract, 90 bbls, at 5 70, 513 00..... 636 12

Patterson, J.D & Co: Repg vehicles, 159.80; Patterson, The Wm. & Son: Pickles, 4 doz, 9.00. 168 80

Pugsley, Dingman & Co: Laundry soap, 9,671 lbs, 437.41; Postmaster: Rent of box, 8 00. 445 41

Peoples' Coal Co: Balance 1901 coal contract. Egg, 2,413 tons at 5.00, 12,065.00; smithing, 950 lbs, at 5.50, 2 61; soft slack. 125 tons 750 lbs, at 2.55, 319.71; 1902 contract, 1,209 tons 1,780 lbs, 7,077 85..... 19,465 17

Peterboro' Hardware Co: Stable brooms, 1⅛ doz, 7 00; files, 2½ doz, 2.91; screws, 18 grs, 3 74; putty, 200 lbs, 5.00; manure forks, 1 doz 7.50; hose, 50 ft, 10 00; snow shovels, 3 doz, 8 25; sledge handles, 3 doz, 5 25; cotton waste, 1 bale, 8.70; glass, 116.00; iron, hardware, etc, 14 33 ..... 188 68

Pringle, W. & Son: Bran, 20 bu, 30.00; Prowse, Geo. R: Plumbers' supplies, 20.04..... 50 04

Reid, W. G: Tea, 250 lbs, 62.50; Richards, D Laundry soap, 960 lbs, 39.30..... 101 80

Rea, Jos: Tea, 175 lbs, 43 75; Rodger, Jno: Blacksmithing and horseshoeing, 76 90 ..... 120 65

Russell, Jas: Travelling expenses, 43 35; balance *re* table allowance, 97.79; allowance *re* furniture and furnishings, 75.93; atttending psychological assn, 100 00 ... 317 07

Sullivan, J. C. Pot barley, 1,600 lbs, 48 00; blueing, 24 lbs, 4.32; currants, 499 lbs, 34 93; pepper, 150 lbs, 30.00; pickles, 6 doz, 6 60; corn, 6 doz cans, 5.40; raisins, 168 lbs, 12 60; corn starch, 40 lbs, 2.40; coffee, 800 lbs, 200 00; ginger, 30 lbs, 5.40; sundries, 9 90..... 359 55

Smith, Frank: Eggs, 570 doz, 81.90; Saunders & Rowan: Scarlet cloth, 2½ yds, 13.00..... 94 90

Soper, R: Awnings and frames, 3, 9.50; Shaw, Hugh: Horseshoeing, 16.00 ..... 25 50

Skedden Brush Co. Scrub brushes, 18 doz, 39.60; toilet brushes, 3 doz, 18.00; dusters, 1 doz, 8 00; shoe brushes, 1 doz, 5.50; sundries, 14 20..... 85 30

Scott, Jas: Felt, 33 yds, 25.13; sundry furnishings, 12.45..... 37 58

Stanley, Mills & Co: Tinware sundries, 6.95; amusements, 6 75..... 13 70

Stevenson, Geo: Valves, 52.20; castings, 155.31; force cups, 1 doz, 18.00..... 225 51

Shea, Jas.: Drawing linen, 9.66; twill cotton, 30 yds, 3.45 ..... 13 11

Shea, Jno. F: Overshoes, 12 prs, 18.00; boots and shoes, 9 prs, 11.00..... 29 00

Smart-Eby Machine Co.: Repairs to boiler, etc.. ..... 132 82

Sundry newspapers: Subscriptions, 36.00; advertising, *re* supplies, 153. 75; *re* fuel, 204.50. 394 25

Taylor, Jas. C. Ewers, 1 doz, 4.80; bowls, 40 doz, 44.37; cups and saucers, 17 doz, 13.33; basins, 1 doz, 4.80; spittoons, 6 doz, 54.00; bottle castors, 1 doz, 33.00; molasses cans, 18, 3.00; dinner set, 5.60; jugs, 9 doz, 32.40; tumblers, 18 doz, 14.40; chambers, 20 doz, 80.00; chinaware, etc., 45.15; tea plates, 12 doz, 10.80; plates, 32 doz, 25.40; fruit jars, 2.25 ..... 373 30

Taylor, Jno. & Co.: Laundry soap, 4,000 lbs, 183.67; Turnbull, J.C: Yarn, 24 lbs, 10.80.. 194 47

Troy Laundry Machinery Co: Potash, 2,160 lbs, 178.20; laundry trucks, 6, 60.00; soda, 240 lbs, 13.80 ..... 252 00

Thomson, Alex.: Sideboard, 11.00; hair, 600 lbs, 285.00; lounge, 10.00; furniture, 100.00. 406 00

Taylor, E.: Repg implements, 23.00; Taylor, W.: Cleaning chimneys, 17.50..... 50 50

Turnbull, A. C. Stationery, 44.98; postage stamps, 40.25; playing cards, 4 doz. pkgs, 10.00. 95 23

Times Printing Co.: Printing and advertising 73.17; blank books, 29.00 ..... 102 17

Thompson, Jno. R.: Pictures and frames, 21.75; Thompson, Jas.: Music supplied, 15.00 .. 36 75

T.H.& B. Ry.Co.: Freight charges, 8.06; Upton, F. & Co: Assorted jam, 4,441 lbs, 310.80. 318 86

Valley City Seating Co: Upholstering, 10.07; chairs, 2, 9.50; settee, 10.09; institute chairs, 6, 28.50 ..... 58 16

Wood, Vallance & Co: Iron, hardware, etc., 253.81; sash cord, 44 lb, 12.24; canvas, 211 yds, 105.50; japan, 26 gals, 24.00; rope, 286 lbs, 46.00; twine, 193 lbs, 58.50; galv. iron, 148 lbs, 4.59; iron pipe, 748 ft, 46.85; white lead, 7,000 lbs, 418.75; bronze, 11½ lbs, 31.73; turpentine, 194 gals, 132.37; whiting, 672 lbs, 6.38; raw oil, 86 gals, 67.23; boiled oil, 135 gals, 107.68; varnish, 17 gals, 25.00; glazier's diamond, 5.50; knapping hammers, 3 doz, 8.10, paints and oils, 136.52; fire brick, 17.50; duck, 61 yds, 7.63; hose, 125 ft, 18 75; scoops, 1 doz, 11.70; screws, 6.88; shears, 18, 14.10; shellac, 2 gals, 5.50; varnish brushes, 6, 7.00; vise, 7.70;

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, HAMILTON.—*Continued.*

EXPENSES.—*Continued.*

spades, 2 doz, 22.00; keys, 30.00; razors, ½ doz, 6.00; rakes, 2 doz, 13.00; refrigerator, 25.00; flue cleaners, 3, 9 00; rpg. locks, 15.00; buckles, 13.70; table spoons, 24 doz, 40.80; table knives, 12 doz, 45.00; machine oil, 43 gals, 12.82	$1,819 83
Wakins, Thos. C.: Art muslin, 100 yds, 25.00; plush, 8 yds, 10.80; carpet, 134 yds, 128.61; serge, 15 yds, 7.63; curtains, 9 prs, 42.25; curtain poles, 5.27; suiting, 737 yds, 147.40; satin, 7 yds, 3.67; sundries, 119.40; rugs, 264.45; table covers, 12, 64.95; brussels rug, 28.40; mats, 7, 9.55; shade cloth, 365 yds, 122.10; velvet, 4 yds, 4.00; silk, 33 yds, 28.55; muslin, 173 yds, 49.20; cambric, 191 yds, 30.38; shirting, 1,523 yds, 237.01; galatea, 895 yds, 166.91; print, 1,442 yds. 196.82; window shades, 200, 40.00; gingham, 507 yds, 110.95; denim, 95 yds, 17.06; madras, 68 yds, 22.25; fringe, 31 yds, 9.30; cushions, 24.62; grill, 1, 15.00; fire screen, 5.00; napkins, 2 doz, 8.75; felt, 15 yds, 16.15; percole, 324 yds, 51.78; pillow cotton, 93 yds, 18.60; linen, 36 yds, 21.90; covering for lounges, 53 yds, 53.85; scrim, 24 yds, 4.32; lining, 119 yds, 7.14; dungan, 76 yds, 20.52; blind rollers, 72, 10.80; sateen, 24 yds, 7.20; pique, 30 yds, 13.50	2,171 04
Wenger, Aaron: Balance 1901 butter contract, 3,864 lbs, at 22c	350 08
Wright, Jno: Lard, 300 lbs	37 50
Woods, Walter & Co: Combs, 24 doz, 46.80; sundries, 22 27; brooms, 35 doz, 96.25; stable brooms, 2 doz, 18 00; soap, 253 lbs, 19.79; whisks, 2 doz, 4.00; tanglefoot, 1 cs, 4.00	211 11
Warren, M.P.: Rpg. baker's oven, 8.52; Wilson, Jno.: Iron, tinware, etc., 74.35	82 87
Wilde, J. E.: Honey, 670 lbs, 67.00; Wilson, The H. A. Co: Athletic goods, 25.88	92 88
Wilson, W. F., M.D.: Expenses *re* transfer from London	10 90
Wickens, A. M.: Travelling expenses inspection boilers	6 60
Way, B.: Travelling expenses, 30.60; Young, Jno. B.: Pens, 9.15	39 75
Young, Angus: Pine wood, 24 cords, 84.00; hardwood, 29 cords, 153 56	237 56
Zimmerman, J. A.: Paris green, 65 lbs, 14.95; chamois skins, 6, 6 00; sundries, 3.35	24 30
Sundry persons: Accounts unenumerated under 10.00	105 24

ASYLUM FOR INSANE, MIMICO.

SALARIES ($26,233.33).

N. H. Beemer, M.D.	Twelve months'	salary as	Medical Superintendent	1,800 00
W. C. Barber, M.D.	Six	do	Assistant do	549 96
J. M. Forster, M.D.		do	do do	549 96
P. McNaughton, M.D.	Seven	do	do Physician	495 80
W. P. St. Charles, M.D.	Five	do	do do	354 15
Jas Corcoran	Twelve	do	Bursar (including rent allowance)	1,400 00
Walter P. Sturt		do	Assistant Bursar	600 00
Robt. Elkin		do	Steward	699 92
F. N. Wallis		do	Storekeeper	699 96
Jno. Gourlay		do	Engineer	549 96
Jas. Aillas		do	do (Pump House)	499 80
Wm. Wilkinson		do	Assistant Engineer	300 00
Andrew Craib		do	Electrician	300 00
Firemen (3)		do		738 66
Adam Dyer		do	Carpenter (including rent allowance)	600 00
Richard Herbert	Ten	do	Assistant Carpenter	150 00
Samuel Matheson	Twelve	do	Gardener	450 00
Geo. Dea		do	Baker	450 00
B. Watson		do	Mason	499 80
Wm. Boulton		do	Farmer	499 80
Thos. Pattison		do	Assistant Farmer	252 00
W. J. Walker	Six	do	Plowman	113 54
John Feeley	One	do	do	20 00
Jas. Anscombe	Five	do	do	100 00
E. Blackburn	Seven	do	Stableman	140 00
Geo. Cook	Four	do	do	70 00
Jno. C. McMullen	Twelve	do	Laundryman	252 00
Jas. Rice		do	Sewageman	240 00
Thos. Dunn		do	Messenger	288 00
G. Stubbs	Eleven and ½	do	Butcher and Dairyman	242 30
Jas. Aldridge	Twelve	do	Shoemaker	349 92
Robt. Jenner	Five	do	Porter	62 50
E. Fidlar	Four	do	do	46 66
Male Supervisors (6)	Twelve	do		1,671 33
Male Attendants (17)		do		3,913 28
Night Watchmen (2)		do		480 00
M. H. Quinlan		do	Matron	499 80
Emma A. Fish		do	Assistant Matron	249 60
Agnes Redick		do	Tailoress	300 00

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, MIMICO.—*Continued*

SALARIES.—*Continued*

Sarah Moore	Twelve months' salary as Seamstress		$150 00
Cooks (2)	do		387 00
Maids (4)	do		585 81
Laundresses (3)	do		407 61
Female Supervisors (5)	do		875 58
Female Attendants (18)	do		2,092 80
Female Night Watches (2)	do		305 83

EXPENSES ($44,088.98).

Aikenhead Hardware: Gauge glasses, 3 doz, 4.20; discs, 7 doz, 9.36; iron pipe, 103 ft, 5.19; lace leather, 3.60; Putz cream, 24 tins, 7.90; chamois skins, ½ doz, 3 90; rope, 23 lbs, 4 00; skates, 9 pr, 11 25; wire screen, 10 00; iron, hardware, etc, 111.41; glass, 73 10; tube expander, 4 50; putty, 205 lbs, 6 15; curtain fixtures, 12 sets, 3.00; sand paper, 1 ream, 3 25; drawer pulls, 3 doz, 9.00; curtain rings, 12 doz, 4 50; chisels, 5.00; latches, 20 25; wire rope, 600 ft, 15.00; nails, 5 kegs, 14.95; locks, 11.00; shade rollers, 6 doz, 8.00; sash cord, 10 lbs, 4 00 . . . . . 352 51

Alienist and Neurologist: Sub, 5.00; Am. Medico Psychological Assn: Annual dues, 10 00 . . . . . 15 00

Beardmore & Co: Shoe leather, 1,249 lbs, 352 57; uppers, 12 prs, 15.00; tacks, rivets, thread, etc, 29.42 . . . . . 396 99

Brown, E. & Co: Tea, 621 lbs, 120.98; Butwell, Henry: Brick, 1,000, 8.50 . . . . . 129 48

Butler, Jas: Yarn, 250 lbs, 125.00; Byron, R. J: Window shades, 76.57 . . . . . 201 57

Brown Bros: Stationery, 5.45; blank books, 13.50 . . . . . 18 95

Borland, C. B: Drugs and chemicals, 69.16; Bell Telephone Co: Messages, 6.50 . . . . . 75 66

British Medical Assn: Annual dues, 5 25; Bursar: To pay sundries, 61.77 . . . . . 67 02

Beemer, N. H., M.D: Balance re table allowance, 438.83; allowance re furniture and furnishings, 87 37; trav. exps. attending convention, 100 00; travelling expenses, 4.00 . . . . . 630 20

Connal, Peter & Son: Coffee, 150 lbs, 52 50; raisins, 140 lbs, 9.80; syrup, 123 gals, 47.97; tapioca, 176 lbs, 7.04; tubs, ½ doz, 4 75; nutmegs, 5 lbs, 4.50; currants, 127 lbs, 8.58; pipes, 2.70 . . . . . 137 84

Caulfield, Burns Co: Mitts, 10 doz, 45 00; Can. Typewriter Co: Typewriter, 90.25 . . . . . 135 25

Campbell, Arch: Bran, 17 tons, 220.00; pea meal, 1 ton, 30.00; sundries, 1.80; shorts, 1 ton, 22.00; middlings, 2 tons, 30.00 . . . . . 303 80

C. P. Industries: Uniform buttons, 2 gro, 12.00; tweed, 456 yds, 227.74; sundries, 1.59; blankets, 6 prs, 16.80; binder twine, 20.25 . . . . . 278 38

Chapman, A. W: Repairing vehicles, painting, etc, ... 125 00

Cohen Bros: Spectacles, 5 doz 18 00

Canada Foundry Co: Repairing hydrant, 7.80; Carton, M: Tobacco, 300 lbs, 117.00 . . . . . 124 80

Can. General Electric Co: Electrical supplies, lamps, etc 153 91

Cowan Jas: Cleaning chimneys 14 25

Craib, Jno: Horseshoeing, 89.60; Consumers Gas Co: Coke, 13.44 . . . . . 103 04

Carveth, J. A. & Co: Medical books, 5.50; Chandler & Massey: Surgical appliances, 62.45 . . . . . 67 95

Cameron, L. K: Stationery, 232.70; Can. Express Co: Charges, 49.10 . . . . . 281 80

C. P. Railway Co: Freight charges, 10.40; Carbon Studio, Photo, 5.00 . . . . . 15 40

Doyle, The M. Fish Co: Fish, 10,881 lbs 870 48

Dominion Radiator Co: Iron pipe, tees, etc 40 28

Dover Vinegar Works: Vinegar, 4 bbls, 44.36; Davis, Jno. & Son: Flower pots, 4,000, 26.00 . . . . . 70 36

Dineen, W. & D. Co: Felt hats, 8 doz, 48.00; straw hats, 8 doz, 19.00 . . . . . 67 00

Deverell, A. D: Drugs and chemicals, 265.52; Devins, I. N: Ice cream, 9 gals, 9.90 . . . . . 275 42

Eby, Blain Co: Sugar, 18,434 lbs, 687.64; blacking, 3 doz, 2.70; tobacco, 315 lbs, 123.09; currants, 838 lbs, 57.59; fly-paper, 2 cases, 8.00; syrup, 3,327 lbs, 99.81; matches, 4 cases, 14 00; tea, 1,365 lbs, 341.25; raisins, 343 lbs, 31.78; assorted peel, 84 lbs, 12.18; sardines, 1 case, 10.50; sago, 141 lbs, 5.99; soap, 36 lbs, 3.42; sance, 1 doz, 6.75; sal soda, 1,125 lbs, 10.69 . . . . . 1,415 39

Eckardt, H. P. & Co: Sugar, 9,771 lbs, 358.12; rice, 6,979 lbs, 251.58; sago, 317 lbs, 12.64; soap, 44½ lbs, 3.56; laundry starch, 270 lbs, 14.85; whiting, 360 lbs, 2.70; raisins, 372 lbs, 32.10; tobacco, 510 lbs, 198.90; tapioca, 183 lbs, 6.41 . . . . . 880 86

Elliott & Son Co: Wall paper, etc, 11.40; Farm Exch. Acct: Hogs, 5,205 lbs, 445.88 . . . . . 457 28

Flett, Lowndes & Co: Lining, 570 yds, 97.18; canvas, 150 yds, 20.26; linen thread, 18 lbs, 43.60; sundries, 51.96; scarlet cloth, 1¼ yds, 4.38; hair cloth, 10 yds, 2.50; buttons, 53.90; cotton thread, 17 gro., 92.25; thimbles, 2½ gro., 5 96; machine silk, ½ lb, 5.50 . . . . . 377 49

Ferrol Co'y: Ferrol, 10 doz, 33.00; Forster, Dr. J. M: Exp. re transfer from Kingston, 15.40 . . . . . 48 40

Foy, Geo. J: Spirits for medicinal purposes 30 00

Godden, C. P: Iron, hardware, &c, 128.30; twist wire, 10.05; cattle chains, 2 doz, 8.00; glue, 5.00; wringer, 4.50; hinges, 11.00; nails, 7 kegs, 20.40; glass, 21.15; boiler tubes, 24, 25.50; mop rope, 12 coils, 66.35; carving forks, 6, 4.20; shovels, 2 doz, 30.00; scoops, 6, 7.50; wheelbarrows, 4, 32.00; putty, 100 lbs, 3.50; rakes, 1½ doz, 7.55; hoes, 1 doz, 6.00; castor oil, 5½ gals, 6.90; iron pipe, 214 ft, 22.47; bolts, 9.60; bibb cocks, 1 doz, 6.00; paris green, 75 lbs, 18.75; scythes, 4, 4.00; solder, 26 lbs, 6.50; angle valves, 1 doz, 10.50; elbows, 8.00; galv. iron sheets, 19.00; sheep shears, 3 prs, 3.00; wicks, 20 lbs, 6.00; valves, 8.50 . . . . . 520 22

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued*

ASYLUM FOR INSANE, MIMICO.—*Continued.*

EXPENSES.—*Continued.*

Gowans, Kent & Co: Dinner set, 35.00 ; lamp and globe, 6.75 ; china, glassware, etc, 90.84.. $132 59
Grant, G. W. & Co: Packing, 8 lbs 9 90
Graham, A: Rolled oats contract, 80 bbls at 5.75 ..... 460 00
Grant-Hamilton Oil Co: Cylinder oil, 87 gals, 61.23 ; engine oil, 45 gals, 20.25 ..... 81 48
Griffin, P. & P: Hair, 150 lbs 52 50
Glionna-Marsicano Orchestra: Music for annual ball 25 50
Grenadier Ice Co: Ice, 329⅝ tons, 328.83 ; G. N. W Tel. Co: Telegrams, 19.45 ..... 348 28
G. T. Railway Co: Freight charges 61 05
Hobbs Hardware Co: Sanitary fluid, 132 gals 178 21
Henry & Co: Rice, 2,500 lbs, 93.75 ; cheese, 1,346 lbs, 152.51 ..... 246 26
Harris, The E. Co: Beeswax, 20 lbs, 7.00 ; Hunter, R. Purchase of meat, 6,165.97..... 6,172 97
Hamilton, W. B. Shoe Co: Boots and shoes, 49 pr, 32.76 ; laces, 24 gro., 24.00 ..... 56 76
Howland, H. S., Sons & Co Table knives, forks & spoons, 25 doz, 49.69; sundries, etc, 65c. ; lawn mowers, 11, 44.00 ; razors, 1 doz, 12.50. ..... 106 84
Heather, H: Iron, tinware, etc, 49.10 ; repairs, 129.75..... 178 85
Hunter, Moses: Hay, 6.1831 tons, 70.36 ; oats, 257 bush, 117.48 ..... 187 84
Harper, M. A: Board for messenger and horses 137 37
Howland & Elliott. Chopping feed..... 10 98
Johnson, D: Castings, etc, 15.03 ; James, W: Grate bars, 182.00..... 197 03
Kay, Jno., Son & Co: Poles and brackets, 18, 31.35 ; curtains, 19 pairs, 113.07 ; curate, 8.50 ; silk, 13 yds. 8.45 ; sateen, 15 yds, 7.75 ; table cover, 6.00 ; sundries, 66.46 ; making and laying carpet, 216 yds, 286.59 ; rugs, 37.10 ; brocade, 4 yds, 10.77 ; chairs, 4, 36.00 ; wall paper, 23.55 ; denim, 11 yds, 11.00 ; velour, 7 yds, 10.13.. 656 72
Keith & Fitzsimons Co: Electrical fittings, 19.00 ; Kelly, L: Threshing grain, 39.25. .. 58 25
Kent, Ambrose & Sons: Spectacles, 3 doz, 1.50 ; cleaning and repairing clocks, 3 50 ; thermometers, ½ doz, 2.50 ..... 7 50
Kingston Asylum: Scrub brushes, 36 doz, 72.00 ; Larkin, P. C. & Co: Tea, 1,620 lbs, 405.00 477 00
Lott, B. O: Honey, 601 lbs, 60.10 ; London Ammonia Co: Powder ammonia, 260 lbs, 15.60 75 70
Lalor, The F. R. Canning Co: Peas, 20 doz cans, 18.00 ; corn, 20 doz cans, 16.00 ; chicken soup, 2 doz cans, 2.50 ..... 36 50
Lynch, Jos: Services, temporary attendant, 36.00 ; Lynch, Jas: Drugs and chemicals, 40 45. 76.45
Murray, W. A. & Co: Sundry furnishings, 114.88 ; table linen, 30 yds, 35.50 ; curtains, 13 prs, 54.65 ; table cloths, 6, 9.00 ; napkins, 4 doz, 11 00 ; lace, 3 doz, 4.05 ; embroidery, 44 yds, 6.60 ; scarfs, 6, 6.00 ; linen, 22 yds, 7.68 ; cheese cloth, 30 yds, 3.00 ; silk, 7 yds, 4 50 ; sateen, 102 yds, 21.56 ; cambric, 42 yds, 7.50 ; aprons, 26, 13 00 ; centre pieces, 4, 8.25 ; flannel, 46 yds, 37.20 ; spools, 16 gro, 86.40 ; damask, 13 yds, 20 46 ; silk line, 157 yds, 21.26; batting, 4 bales, 25 00; towels, 2 doz, 9 00; corsets, 12 doz, 108 00 ; sheeting, 34 yds, 10 35 ; carpet, 6 yds, 6 96 ; blankets, 100 pr, 65.00 ; hair pins, 90 lbs, 31 50 ; quilts, 7, 38.70 ; doyleys, 16, 4.50 ; drapery stuff 32 yds, 6.83 ; lustre, 88 yds, 44.25 ; cotton, 1,400 yds. 126.31 ; denim, 11 yds, 3 94 ; madras, 7 yds, 3.00 ; cretonne, 6 yds, 2.19 ; crochet cotton, 5 gro, 30.00 ; muslin, 240 yds, 7.20..... 995 22
Moore, Wm. & Son: Oranges, 4½ cases, 16 30 ; lemons, 12 cases, 43 25 ; pineapples, 4 doz, 10 60 ; prunes, 6,575 lbs, 482 16 ; berries, 492 boxes, 36.90 ; table raisins, 2 boxes, 6.50; sundries, 2.38; cherries, 45 bskts, 49.50; plums, 25 bskts, 13.00 ; blueberries, 10 bskts, 13 00 ; peaches, 50 bskts, 32.50 ; chicken soup, 8 doz. cans, 12 80 ; tomatoes, 6 doz cans, 10 80 ; peas and corn, 16 doz cans, 14.80 ; salmon, 16 doz cans, 22.40 ; evap. apples, 500 lbs, 45.50 ; raisins, 216 lbs, 22.68 ..... 835 07
Maloney, Jno & Co: Lime, 7,050 lbs, 21.52 ; cement, 12 bbls, 30 00 ; fire brick, 1,000, 32.50 ; fire clay, 1,200 lbs, 7.20 ; plaster paris, 4 bbls, 8 00 ; hair, 3 00 ..... 102 22
Map & School Supply Co: Batteries, 12, 6.00 ; Menzie Mfg Co: Shade cloth, 906 yds, 140.20 146 20
Matheson, S. H: Trav. expenses, 18.30 ; Munro Bros Drugs and chemicals, 167.05.... 185 35
Madill, W: Drugs and chemicals, 38.25 ; Matthews, F: Smoking hams, 8 47 ..... 46 72
Mallon, Jno. & Co: Poultry, 1.20 ; lamb, 25.68 ..... 26 88
Mimico Electric R'y Co: Car tickets, 22.00 ; Might Directories: Directory: 5.00 ..... 27 00
McMahon, Broadfield & Co: Bowls, 35 doz, 31.40 : china, glassware, etc, 14.45 ; cups, 48 doz, 19.20 ; covered dishes, 2 doz, 12.35 ; cuspidors, 2 doz, 15.75 ; jugs, 13 doz, 31.30 ; ewers, 1 doz, 4.00 ; tumblers, 1 gro, 4.20 ; nappies, 10 doz, 3.50 ; gem jars, 4 gro, 51.60 ; teas, 24 doz, 15.60 ; plates, 15 doz, 9.00 ; basins, 1 doz, 4 00 ... 196 35
Macdonald, Jno. & Co: Denim, 417 yds, 74 05 ; serge, 141 yds, 290.59 ; cotton, 1 708 yds, 159.60 ; art mus in. 1,310 yds, 113.27 ; cretonne, 336 yds, 66.30 ; linen, 20 yds, 10.00 ; muslin, 72 yds. 7 20 ; ribbon, 27 36 ; sweaters, ½ doz, 6.00 ; shawls, 33, 23.10 ; dress goods, 1 758 yds, 318 73 ; lawn, 24 yds, 3.60 ; lace, 13 80 ; braces, belts, ties, etc, 20 doz, 43.44 ; collars, 14 doz, 14 70 ; pipes, 8 doz, 20.25 ; shaker, 795 yds, 91.52 ; felt, 20 yds, 11 00 ; handkerchiefs, 24 doz, 25.45 ; cocoa mats, 2 doz, 33 00 ; crotchet cotton, 15 gro, 90 00 ; knitting cotton, 44 lbs, 18.93 ; horse blankets, 7, 10 17 ; needles, 5,000 5.00 ; corduroy, 229 yds, 169.26 ; sundries, 48 71 ; towels, 36 doz, 121.25 ; print, 1,834 yds, 178.15 ; gingham, 266 yds, 31 30 ; sateen, 51 yds, 8.93; duck, 603 yds, 70 23; shirting, 117 yds, 14 78; skirting, 181 yds, 18.08 ; frilling, 9.00 ; batting, 13 b'dles, 74.75 ; ticking, 276 yds, 40 32, hessian, 509 yds, 86 53. 2,348 35
McGill, Wm. & Co: Coal contract—Stove, 18 tons 595 lbs at 5.91, 108 15 ; nut, 11 tons 550 lbs at 5.91, 66.63 ; nut, 2 tons at 6.20, 12.40 ..... 187 18
McLaughlin, M. & Co: Flour contract—935 bbls at 3.47½, 3,249.14; shorts, 3 tons 340 lbs, 66.98 ; bran, 4 tons, 150 lbs, 67.78..... 3,383 90

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, MIMICO.—*Continued.*

EXPENSES.—*Continued.*

McNaughton, P., M.D: Exps re transfer from Brockville. $ 11 15
McClary Mfg Co: Chambers, 50 doz. 165 50
McLean, T. W: Services taking stock, 50.00; allowance for board, 14.00; car fare, 4 00 68 00
Nelson, H. W. & Co: Whisks, 2 doz, 2.70; mouth organs, 1 doz, 2.75; cards, 3 doz, 3.30; brooms, 50 doz, 139.95; combs, 1 gro, 9 20; hair brushes, 3 doz, 18.00; sundries, 4.92 180 82
Neill, R: Boots and shoes, 60 pr. 75 40
Ontario Rubber Co: Hospital sheets, 4 doz, 86.40; rubber boots, 6 pr, 19 00; jar rings, 600, 3 13; sundries, 9.90; packing, 27 lbs, 20.63; hose, 500 ft, 45.00 184 06
Ontario Sewer Pipe Co: Chimney tops, 4, 10.00; pipe, 100 ft, 9.00. 19 00
Park, Blackwell Co: Balance 1901 butter contract — 1,977 lbs, at 21½c, 425.05; 1902 butter contract—14,947 lbs, at 21c, 3,138.87 3,563 92
Playter, C.P: Drugs and chemicals, 18.30; People's Coal Co: Egg coal, 5 tons, at 6.50, 32 50 50 80
Peterboro Hardware Co: White lead, 1,000 lbs, 58 76; sundries, 11.59; oils, etc, 126 tins, 21.52; boiled oil, 47 gals, 39.95; oil finish, 5 gals, 7.50; japan, 5 gals, 5.00; varnish, 5 gals, 6.25; turpentine, 47 gals, 33.25; brushes, 14.60 198 42
Parent, Emily: Money loaned to pay railway fare of discharged patient to Sudbury. 10 00
Pugsley, Dingman & Co: Laundry soap, 20,522 lbs, 895 60; borax, 5 boxes, 7,50; soap, 50 boxes, 124.00 1,027 10
Piper, N. L. Railway Supply Co: Lanterns, 1 doz, 9.00; globes, 2 doz, 2 00 11 00
Parke & Parke: Drugs and chemicals, 25.13; Quinlan, M.H: Exp re purchase of supplies, 58.75 83 88
Queen City Oil Co: Engine oil, 44 gals, 22.32; coal oil, 312 gals, 49.12; sundries, 1.63; parafine wax, 200 lbs, 17.00; refined oil, 139 gals, 21.53; signal oil, 42 gals, 27 65 139 25
Ryan, The Wm. Co. Turkeys, 1,000 lbs, 112.31; geese, 6 0 lbs, 55.80; eggs, 3,090 doz, 603.30; chickens, 30 pr, 28.40; gold dust, 30 bbls, 126.75; table salt, 12 bbls, 34 00; coarse salt, 40 bbls, 52.00; evap apples, 1,000 lbs, 92 50; rolled wheat, 35 bbls, 102 50; syrup, 3 tins, 16.50; cheese, 1,998 lbs, 253.38; sundries, 19 88; calf, 5.44; beans, 25 bush, 34.73; potatoes, 100 bags, 85 00; honey, 5.70 1,628 19
Rogers, Elias Co: Coal contract—Large egg, 51 tons 465 lbs, at 5.63, 288.44; sott screenings, 107 t ns 1,208 lbs, at 3 28, 352.94; Special contract—soft lump, 614 tons 1,785 lbs, at 4.53, 2,785.46; hardwood, 11 cords, at 6.50, 71.50 3,498 34
Robertson, Jas. Co: Castings 12 58
Rutherford, Marshall & Co: Butter contract—7,788½ lbs, at 16¾c 1,304 60
Rogers, Chas. & Sons Co: Tow, 470 lbs, 18.63; steel springs, 100 lbs, 10.00; furniture, repairs, etc, 66.15; grate and mantel, 31.75 126 53
Rice, Lewis & Son: Wringer, 6.50; salad servers, 1 set, 4.25; bread knives, etc, 8.00; bowls, 4 pr, 18.25; pepper shakers, 4, 4.00; salt sellars, 1 set, 4 00; coffee grinder, 5.50; athletic goods, 41.01; hardware, etc, 2.20 93 71
Rees, Chas, F. & Co: Heat deflector, 6 00; Rennie, Wm: Seeds, etc, 88 81 94 81
Ratz, J. E: Graham flour, 800 lbs, 14 00; Stevens, J & Son Co: Surgical appliances, 31 61 45 61
Swan Bros: Biscuits, 115 07; baking powder, 315 lbs, 78.75; matches, 11 cs, 38.50; washboards, 4 doz, 8.00; candies, 224 lbs, 16 80; twine, 58 lbs, 15,90; sugar, 254 lbs, 14.54; chocolates, 6 boxes, 5.60; tapioca, 143 lbs, 5.72; gelatine, 7 doz, 8.40; pipes, 6 boxes, 5.10; lump camphor, 10 lbs, 9 00; mixed nuts, 120 lbs, 19 20; pails, 5 doz, 10.00; paper bags, 2,500, 16.95; pepper, 35 lbs, 7.35; sapolio, 6 gro, 66 00, sundries, 70.31; cinnamon, 50 lbs, 17.00; paper, 6 rms, 22.68; coffee, 300 lbs, 75.00; tomatoes, 4 doz. cans, 4.80; pickles, 4 doz, 13 00; chocolate, 12 lbs, 4.20; extracts, 2 doz, 4.50; corn starch, 160 lbs, 12.00; chicory, 66 lbs, 7 80 672 17
Sullivan, J, C: Tobacco, 300 lbs, 117.00; starch, 230 lbs, 19.10; sundries, 60c 136 70
Smith, J. B. & Sons: Dressed lumber, 4,433 ft, 165.28; panel, 1,000 feet, 35.00; lumber, 38.29; flooring, 1,275 ft, 59 52 298 09
Sutcliffe, J. & Sons: Cheese cloth, 350 yds, 15.75; batting, 200 lbs, 24.00; hessian, 527 yds, 94 86 134 61
Sanderson & Rossiter: Assorted brushes, 2½ doz, 4 65; whisks, 2 doz, 3.20; sundries, 35c 8 20
Sanderson & Co: Dusters, 2 doz, 7.50; paint brushes, 4, 4.00; sundries, 1.25 12 75
Stewart & Wood: White lead, 2,820 lbs, 165.24; japan dryer, 10 gals, 10.00; turpentine, 94 gals, 62.48; glass cutters, 1 doz, 3.00; varnish, 5 gals, 8 75; paint brushes, 8.00; boiled oil, 45 gals, 36 00; oak finish, 5 gals, 8.75; sundry paints and oils, 24.65 326 87
Standard Vinegar Co: Vinegar, 77 gals, 17 71; barrels, 4.00 21 71
Smith's Toronto Dye Works: Dyeing curtains, etc, 47.10: Smith, J.C: Insp'n of scales, 7.00 54 10
Sparrow, Wm. H: Teapots, 2, 7.00; iron, tinware, etc, 28.05 35 05
Stubbs, Geo: Calves, 3, 24.40, Sheridan Mfg. Co: Castings, 37.47 61 87
Steele, Briggs Seed Co: Seeds, bulbs, etc. 274.01; oil cake, 5 tons, 141.00 415 01
Smith, C.W: Brazing outfit, 8.00; Smith, Andrew, V.S: Pro. services and medicines, 13.50 21 50
Smith, Andrew: Harness supplies and repairs, 73.25; Slater, Jno: Blacksmithing, 65.20 138 45
Sundry Newspapers: Subs, 13 00; advertising, *re* supplies, 93.00; *re* fuel, 144 50 250 50
Turnbull, J. C: Quilts, 100, 80.00; print, 444 yds, 55.52; linen, 247 yds, 61.88 197 40
Taylor, Jno. & Co: Toilet soap, 3 gro, 21.60; Toronto Gas Co: Coke, 9.00 30 60
Tully, J. D: Drugs and chemicals, 37.09; Trott, J. H. School books, 6.30 43 39
Tweedie, M A: Services as trained nurse, 30.00; Toronto Railway Co: Car tickets, 29.00 59 00
Vienna Pressed Yeast Co: Yeast, 311 lbs, 80,86; Warren Bros. & Co: Sugar, 10,661 lbs, 408.49 489 35

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, MIMICO.—*Continued.*

EXPENSES.—*Continued.*

Wheeler & Bain: Granite bowls, 10 doz, 21.50 ; iron pails, 2 doz, 8.35 ; cuspidors, 1 doz, 6 00 ; cups, 5 doz, 6.00 ; iron, tinware, etc, 66.23 ; milk cans, 3, 11.25 ; tea trays, 1 doz, 12.00	$131 33
Wilson, C. & Son: Adjusting and rep'g scales, 22.25 ; Whitfield, Jno. & Co: Castings, 9.10	31 35
Westman, E: Cleaver, 4.50 ; hardware sundries, 12.80.	17 30
Wells, J: Dentristry, 138 75 ; Watson, T. G: Drugs and chemicals, 67 75	206 50
Wilson, The Harold A. Co Sub. magazines, etc, 35.20 ; amusements, 1.25 : athletic goods, 30.10	66 55
Warwick Bro's & Rutter: Staty, p't g and b'd'g,158.17 ; Werden, A: Postage stamps,160.00	318 17
York Mfg Co: Mangle felt 22½ lbs.	20 25
Sundry persons: Accounts unenumerated under 10.00	84 59

ASYLUM FOR INSANE, BROCKVILLE.

SALARIES ($23,120.83).

J. B. Murphy, M.D	Twelve months'	salary as	Medical Superintendent	1,800 00
R. W. Bruce Smith, M.D.	do		Assistant Physician	1,099 98
Harvey Clare, M.D	do		Second Assistant Physician	815 28
W. P. Dailey	do		Bursar (including rent allowance)	1,499 99
J. A. Laidlaw	do		Storekeeper (do)	950 00
R. A. Bush	do		Engineer	499 98
W. J. Fraser	do		Assistant Engineer	300 00
D. McCrimmon	do		Farmer.	499 99
W. J. McKay	do		Messenger	443 74
J. Weatherstone	do		Carpenter	499 98
Patrick Crilly	do		Tailor	450 00
Peter Kilgour	do		Baker	450 00
John Richards	do		Gardener	533 99
Ed. Gilmour	do		Chief Attendant	394 61
Male supervisors (6)	do			1,773 00
Male attendants (16)	do			3,570 02
Stokers (4)	do			859 32
Night watchmen (2)	do			462 00
W. Hough	do		Laundryman	252 00
J. Booth	Four do		Farm Hand	72 00
Jennie R. Gibson	Twelve do		Matron	499 98
H. E. Robertson	do		Assistant Matron	300 00
M. A. Kitts	do		Chief Female Attendant	240 00
Female supervisors (6)	do			1,044 00
Nurses (16)	do			2,108 09
Night watchmen (2)	do			300 00
M. J. Collins	do		Seamstress	144 00
Cooks (2)	do			312 00
Laundresses (3)	do			409 00
Maids (3)	do			469 15
D. E. Darke	Five do		Stenographer	65 73

EXPENSES ($53,514.75).

Abbott, Albert: Hay, 9 tons 1,820 lbs, 79.28 ; Am. Medico Psychol Assn, annual dues, 10.00	89 28
Buell, C. H. & Son: Grapes, 7.00 ; sundries, 10.90 ; oranges, 1 case, 6.00 ; berries, 34.00 ; currants, 5 25	63 15
Baird Bros: Flannelette, 347 yds, 38.21 ; shirting, 217 yds, 21.70 ; carpet, 42 yards, 49.98	109 89
Bartlett, W.: Apples, 52 bu, 19.10 ; Bradfield, R.: Services temporary fireman, 16.00	35 10
Brown, H. & Sons: Oats, 246 bu, 119.51 ; corn hash, 4 tons, 112,00 ; bran, 7 tons, 138.40 ; sundries, 10.70	380 61
Braniff, J. E.: Cottonade, 110 yds, 30.80 ; serge, 25 yds, 65.00 : canvas, 75 yds, 13.13 ; linen, 8.10 ; silk, 1 lb, 12.50 ; buttons, 8 gro, 11.40 : twist, 2.70	143 63
Blair, John: Maple syrup, 19¾ gals, 19 70 ; Booth, E.: Services as messenger, 15.48	35 18
Bissell, H.: Cheese, 4,086 lbs, 463.84 ; Brockville *Times*, sub and advtg, 11.80	475 64
Blair, Hiram: Turkey, 391 lbs, 46.92 ; geese. 470 lbs, 47.00 ; maple, syrup, 16 gals, 15.80 ; apples, 25.20	134 92
Brockville Water Works Dept: Water, 2,000.00 ; Brockville Light & Power Co: Gas, 2,769.38	4,769 38
Bell Tel Co: Messages, 12.45 ; repairs, 12.95	25 40
Buchanan & Sheridan: Interments, 280.00 ; chair, 75c ; excelsior, 209 lbs, 5.75 ; repairs, 3.50	290 00
Bursar: To pay sundries	24 75
Cameron, Allan Bowls, 20 doz, 23.00 ; china, glassware, etc, 31.21 ; chambers, 10 doz, 40.00; pitchers, 3 doz, 18.00 ; tea plates, 11 doz, 7.70 ; jugs, 5 doz, 27.60 : tumblers, 3 doz, 1.50 ; dinner set, 20.00 ; cups, 43 doz, 28.75 ; covered dishes, 1 doz, 4.80 ; ewers, 1½ doz, 9.98 ; basins, 1 doz, 6.60 : platters, ½ doz, 3.60 : saucers, 8 doz, 5.10 : bakers, 5 doz, 5.00	232 84

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, BROCKVILLE.—*Continued.*

EXPENSES.—*Continued.*

Cameron, A. E.: Balance 1901 split peas contract, 6 bbls at 3.90—23.40; balance 1901 flour contract, 236 bbls at 3.39—800.04; balc. 1901 rolled oats contract, 22 bbls at 3.60—79.20; 1902 rolled oats contract, 133 bbls at 5.80—771.40; 1902 flour contract, 917½ bbls at 3.49—3,202.07; sundries, 4.40 ..... $4,880 51
Curry, F. R.: Drugs and chemicals, 546.87; wax, 30 lbs, 6.00; sundries, 7.63 ..... 560 50
Chandler & Massey: Surgical appliances, 31.59; Common Sense Mfg Co.: Insect powder, 10 lbs, 10.00 ..... 44 59
Crawford, James: Balance 1901 potato contract, 300 bu at 40c—120.00; 1902 contract, 521½ bu at 65c—338.98 ..... 458 98
Cossitt, Newton: Apples, 5.60; oranges, 32.00; mixed nuts, 150 lbs, 21.00; candy, 220 lbs, 22.00; cherries, 4 baskets, 5.00; sundries, 6.70 ..... 92 30
C. P. Industries: Boots, 84 prs, 139.60; tweed, 509 yds, 255.37; blankets, 399 lbs, 161.10.. 556 07
Cumming, James: Bran, 8 tons, 161.00; ch feed, 5 tons. 136 50; oats, 550 bush, 273.25; peas, 2 bbls, 6.50; split peas contract, 16 bbls at 4.80—76 80..... 654 05
Carbon Studio: Photo, 5.70; Clare, Harvey: Exps re transfer from Orillia, 11.10 .... 16 80
Collector of Customs: Duty charges, 7.00; Can Express Co Charges, 10.55..... 17 55
C.P.R. Tel Co: Telegrams, 2.62: C. P. Railway: Freight chgs, 3.06.. ..... 5 68
Dobbie, A. G. & Co: Gas globes, 10 doz, 28.00; putty, 54 lbs, 1.62; white lead, 4,000 lbs, 252.50; nails, 3 kegs, 12.20; linseed oil, 90 gals, 77 42; manilla rope, 4.37; turpentine, 44 gals, 36.66; varnish, 5 gals, 16.50; glue, 100 lbs, 15.00; paints and oils, 12.06; glass, 29.00; wall brushes, 10 6.75; iron. hardware, etc, 47.15 ..... 539 23
Derosia, P.: Fish, 10,809 lbs, 972 71; Dudley, George: Apples, 34 bu, 12.55 ..... 985 26
Derbyshire, D. & Co Balance 1901 butter contract, 1,543 lbs at 22c—339.46; 1902 butter contract, 17,594½ lbs at 22c—3,870.79..... 4,210 25
Dailey, W. P.: Travelling expenses, 11.35; Deegan, J. E.: Repg roofs, 54.78..... 66 13
Downey, D. W.: Rubbers, 6 prs, 7.30; boots and shoes, 199 prs, 256.80; slippers, 64 prs, 42.00; sundries, 7.75 ..... 313 85
Everett, W. S.: Sand, 300 bu, 7.00; Fairbairn, F. E.: Cylinder oil, 27 gals, 27.00 ..... 34 00
Farm Exch Account: Beef, 9,786 lbs, 636.08; pork, 1,267 lbs, 92.40 ..... 728 48
Fisher, A. L.: Apples, 24 bu, 9.60; Ferguson, W.: Services as Chief attendant, 20.68.... 30 28
Fulford's Orchestra: Music supplied, 13 00; Gordon, J. F.: Yarn, 300 lbs, 105.00 118 00
Gilmour & Co: Tea, 3029 lbs, 757.38; c ffee, 1200 lbs, 307.50; sugar, 37,063 lbs. 1,270.71; syrup,297 gls, 101.75; tobacco,1074 lbs,410.94; rice,9750 lbs.329 07; prunes,6110 lbs,308.00; figs, 2986 lbs, 164.27; raisins, 319 lbs. 30.87; sago, 2441 lbs. 122.05; soap, 32 00; table salt, 42 sacks. 49.30; dairy salt, 16 sacks 11.40; evap apples. 2470 lbs, 219.40; currants, 399 lbs, 25.30; corn starch, 240 lbs, 17.20; laundry starch, 1300 lbs, 72.75; pot barley, 10 bbls, 44.75; brooms, 44 doz, 110.00; sal soda, 2750 lbs, 23.43; bkg powder, 11 doz, 52 60; raspberries,28 doz cans,50.40; strawberries,22 doz cans,39 60; pears, 20 doz cans, 50.00; peaches, 20 doz cans, 55.50; plums, 20 doz cans, 26.00; tomatoes,peas and corn,6 dz cans.5 25; asst'd jam, 5,712 lbs,471.30; vinegar,166 gls,35.37; matches, 9 cas, 36.00; lye, 8 cases. 28.80; cuspadors, 1½ dz, 11.25; tapioca, 316 lbs, 15.64; pepper, 85 lbs, 18.08; pineapples, 32 doz cans, 57 45; borax, 400 lbs, 30.00; mustard, 28 jars, 21 00; mixed pickles, 10 doz, 22.00; combs, 34 doz, 31.40; L. & P. sauce. 2 doz, 7.20; chocolate. 20 lbs. 5.30; cocoanut, 90 lbs, 18.00; cod fish. 60 lbs, 3.60; salmon, 11 doz cans, 16.50; molasses, 84 gals, 28.60; marmalade, 4 tins. 2 60; blueing, 70 lbs, 8.40; toilet paper, 1 case, 7.00; chow chow, 5 doz, 11.00; scrub brushes, 3 doz. 5 10; lard. 1920 lbs, 240 00; sundries, 233 88 ..... 6,052 89
Grant Hamilton Oil Co Laundry soap, 9415 lbs, 420.44; soap, 2700 bars, 96.75; signal oil, 58 gals, 58.75 ..... 575 94
Green J. & Co: Stationery, 70.53; G. T. Ry. Co: Freight charges, 55.30..... 125 83
Hobbs Hardware Co: Sanitary fluid, 177 gals, 239.63; Herron, Jas. A: Apples,45 bu,15.10. 254 73
Higgins M. J: Livery hire, 6.00; Kellogg, E.H. & Co: Cylinder oil, 28 gals, 28.50..... 34 50
Kehoe, M. J: Cottonade, 197 yds, 51.28; tweed, 323 yds, 161.75; serge, 25 yds, 66.91; scarlet cloth,2 yds,8.; lining.86 yds.64.69; brass buttons,4 gro.18.00; linen thread,4 lbs,11.60 382 23
Kingston Asylum: Scrub brushes, 21 doz, 42.00: Lalor, F.R.Canning Co. Peas, beans, etc., 40 doz cans, 37.04..... 79 04
Lewis & Patterson: Print.254 yds,30.51; quilts, 84, 79.80; sund,54.81; corsets, 1 dz, 11.50; sheeting, 2738 yds, 505.13; thread, 18 gro, 99.00; handkerchiefs, 6 doz, 3.00; ties, 2 doz, 3.50; galatea, 613 yds, 96.55; frilling, 16 doz, 11.20; collars, 2 doz, 2.00; shirting, 583 yds, 62.04; braces, 11 doz. 25.95; rubber sheets, 7 doz, 105.00; cotton,1266 yds.110.59; butter cloth,214 yds,10.70; buttons,9.14; pocketing,124 yds,12.40; burlap,264 yds,39 64; towels, 7⅝ doz, 18 34; napkins,2 doz,5.50; cretonne.90 yds,19.15; towelling, 400 yds, 45.00; damask, 25 yds, 8 75; linen, 95 yds, 17.10; duck. 510 yds, 61.26; muslin, 187 yds, 22 80; dimity, 107 yds, 24.61 ..... 1,494 97
Lane J: Bowls, 8 doz. 6 00; chambers, 20 doz, 80 00; cups, 10 doz, 6.00; glasses, 15 doz. 7 50; sundries, .84 ..... 100 34
London Asylum: Clothes bskts, 2 dz. 24.00; Lott, B.O: Honey, 594 lbs. 59.40; tins,9.3.60 87 00
Lyman, Chas. C. & Co: Shirting, 525 yds. 60.73; sundries, 8.85; towelling, 578 yds, 63.60; towels, 4 doz, 7.29; ticking, 562 yds, 110.34; cotton, 1261 yds, 131.77; corsets, 1 doz. 9.00; flannelette, 1347 yds, 139.23; pique. 18 yds, 5 40. ..... 536 21
LeClair, C. W: Straw hats, 24 doz, 42.00; Marsh Mfg Co: Laundry soap, 1742 lbs, 78.39. 120 39
Murray, H. T: Yeast, 335 lbs, 117.53; sundries, 58.77..... 176 30

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, BROCKVILLE.—*Continued.*

EXPENSES.—*Continued.*

Morrison, The Jas Brass Co: Valves, 7, 49.50 ; Malloch, Wm. & Co: Rep boiler, 30.00.. 79 50
Moore & Mowat Tweed, 217 yds, 108.75; canvas, 100 yds, 16.00; machine thread, 5 lbs,6.25 ; spool thread, 6 gro, 34.50 : serge, 15 yds, 39.75 ; sundries, 10.87.... .... 216 12
Murphy, R. G: Potato contract, 1699⅓ bu @ 65c..... 1,104 57
Malette L: Services temporary baker, 35 00 ; Mott, M: Ice, 517 tons, 211.87..... .. 246 87
Miller, A. C Drugs and chem, 38.69 ; toilet paper, 1 case, 6 00 ; postage stamps, 130.00 ; chloride lime, 652 lbs, 32.60 : paris green, 40 lbs, 8.00 ; parafine wax, 442 lbs, 64.16.... 279 45
Murphy, J. B: Bal *re* table allowance, 319.88 ; allowance *re* furniture & furnishings, 91.22 ; trav expenses, 19 10 .. .. 430 20
McHenry, R. C. & Co: Bacon and ham, 632 lbs, 105.00 ; fruit jars, 4 doz, 3.20.... ..... 108 20
MacNamara, P. B: Collars,ties,etc, 11 dz, 8.25 ; ticking, 37 yds, 6.19 ; felt hats, 6 doz, 36.00. 50 44
McLean, T. W: Services taking stock, 52.00 : trav expenses, 6.95..... 58 95
McGee, Jno: Wages as plasterer 65 00
Neilson, W. H: Bal 1901 meat contract, 35,356 lbs @ 5.45, 1,926.91 : lamb, 55.00 ; 1902 meat contract, 88,159 lbs @ 6.75, 5,950.36 ... ... 7,932 27
Orme, J. L. & Son: Tuning piano, 5.00 ; sheet music, 15.65 ..... 20 65
Queen City Oil Co: Photogene oil,91 gls,16.73 : Rich rds, D Laundry soap, 5600 lbs,224.00 240 73
Rhodes, J. & Co: Eggs, 2805 doz, 491.40 ; ham, 804 lbs, 119.01 ; sundries, 3.19 ... 613 60
Ryan, M: Poultry, 46.69 ; sausages, 5.35 .... 52 04
Ritchie, F. I: Pipes, 5 doz, 6.40 ; subscriptions, 27.70 ; lawn bowls, 1 set, 10.25..... 44 35
Rudd, Geo. A. & Co: Harness supplies, 11.50 ; robes, 4, 46.00.... ..... 57 50
Recorder Ptg Co: Blank books, 57.45 ; post cards, etc, 11.50 ; stationery, ptg, etc, 164.65.. 233 60
Rathbun Co: Pine lumber, 9324 ft, 211.56 ; moulding, 1000 ft, 22.75 ; sundries, 75.00 ; dressed lumber, 2426 ft, 74.67 ; ladder, 10.00..... .... 393 98
Smart, R. H Snow shovels, 1 doz, 3.75 ; latches, 18, 12.90 ; galv. iron,325 lbs, 17.80 ; locks, 42.40 ; plaster paris, 3 bbls, 6.75 ; glass, 31.50 ; metal ceiling, 19.00 ; iron pipe, 188.05; drilling machine, 6.00 ; polish,6.00; wrenches,3.90; belting,100 ft,13.50; shovels, 5, 4.25 ; scoops, 5, 6.40 ; castings, 239.33 ; Heintz trap, 16.00 ; valves, 7.50 ; vice, 6.75 ; cement, 1 bbl, 2.75 ; twine, 5.00 ; glue, 8 qts 8.00 ; drawer pulls,1 gro, 4.80 ; cesspools, 2, 11.00 ; counter brushes, 12, 7.20 ; tin pans, pots, etc, 15.70 ; iron hardware, etc, 217.21 ; lawn mowers, 2, 8.50 ; carvers, 4 sets, 7.40 ; table knives, 2½ doz, 11.00 ; steam thermometer, 4.50 ; steel chain, 88 ft, 3.52 ; kitchen utensils, 15.40 ; sad irons, 4.40 ; meat and tea cans, 15, 29.50 : steamers, 4, 8.00 : brass, 28 lbs, 11.20 ; pulleys, 6.80 : screws, 10.48 ; lathe, 31.00 ; rakes, 6, 3.60..... 1,058 24
Shepherd, Heman: Thread, 6 gro, 32.40 ; cretonne, 15 yds. 3.00 ; print, 1317 yds, 134.19 ; butter cloth, 242 yds, 12.13 ; shirting, 615 yds, 76.88 ; cotton, 666 yds, 59.92 ..... 318 52
Shields, Geo. E Balance 1901 coal contract, 777 tons, 1940 lbs, large egg, @ 5.36, 4,169.91 ; small egg, 44 tons, 1460 lbs, @ 5.36, 239.75 ; stove, 86 tons, 1750 lbs, @ 5.36, 465.63 : sundries, 3.38 ; on account 1902 contract, 2,635 00 .... 7,513 67
Sundry Newspapers: Advertising *re* fuel, 170.50 ; *re* supplies, 93.00 ..... 263 50
Sheridan, W. & J. & Co: Iron pipe, 53 feet, 7.95 ; repairs, 56.40 : bake pans, 50, 11.25 : trough, pipe, etc, 38.13 ; tinware, etc, 8.25..... .... 121 98
Semmens & Evel: Tape, 100 yds, 12.50 ; sundries, 3.00..... 15 50
Smart, The Jas. Mfg Co: Castings, 1258 lbs, 44.24 ; wringers, 4, 20.00 ; lawn mowers,10.00 : repairs, 22.10.... ..... 96 34
Simmers, J. A: Seeds,bulbs,etc,33.40 ; Sangster & McCuaig: Straw,12 tons, 489 lbs, 62.78. 96 18
Strathroy Canning Co: Vegetables, 24 doz cans, 21.12 : fruit, 6 doz cans, 9.00 : apples, 4 gals, 11.00; pork and beans, 2½ doz cans, 2.82..... 43 94
Sykes, H. G: Glass jugs, 1 doz, 5.00 ; plates, 14 doz, 8.08 : cups, 4½ doz, 1.40 ; saucers, 4¼ doz, 1.39 ... . 15 87
Sundry persons: Transferring patients from station to asylum 7 50
Towsley, A: Apples, 14½ bu, 6 25 ; Troy Laundry Mach. Co: Rep. laundry machinery,28.02 34 27
Wright, Robt. & Co: Shawls,51,135.00 ; furnishings, 33 52 ; table linen, 394 yds,138.18 ; muslin, 95 yds, 11 34 ; cretonne, 50 yds, 13.75 ; curtain net, 115 yds, 15.20 : window shades, 26, 18.20 ; gingham, 150 yds, 15.00 ; lace, 3.00 ; towels, 2 doz, 4.20 ; curtains, 6 pr, 18.75 ; rugs, 2, 48.50 ; batting, 8.00..... ..... 462 64
Wickens, A. M: Travelling expenses *re* inspection of boilers..... ..... 3 05
Sundry persons: Accounts unenumerated under 10.00..... .. .. 87 88

ASYLUM FOR INSANE, COBOURG.

SALARIES ($9,892.36).

E. C. McNicholl, M.D.	Fourteen months' salary as	Medical Superintendent.....	$1,750 00
Harriet Cockburn, M.D.	Twelve do	Assistant do	600 00
J. W. Smith	Thirteen & ½ do	Bursar & Storek'pr (including rent allow.)	1,343 33
P. Casserly	Twelve and ½ do	Engineer.....	568 87
Thos. Downs.....	do	Stoker	470 14
Jas. Squires	do	do	469 12
Jos. McDonaugh	Twelve do	Baker	550 00
W. K. Stewart	do and ½ do	Gardener (including rent allow.)	533 31

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued*

ASYLUM FOR INSANE, COBOURG.—*Continued.*

Salaries —*Continued.*

Adam Watson	Twelve months'	salary as	Night Watchman	$316 93
Augusta A. Nelles	do		Matron	562 47
Cooks (2)	Twelve	do		307 58
Laundresses (2)		do		292 64
L. Newton	Eight	do	Seamstress	100 00
F. Chadwick	Three	do	do	36 61
E Batton	One	do	do	14 92
Housemaids (2)	Twelve	do		233 23
E. J. Gunn	Four	do	Chief Attendant	60 00
Margaret Cathcart	Eight	do	do	170 05
R. Middleton	Twelve	do	Supervisor	174 32
R. Burchard	Ten	do	do	141 50
M. Doherty	Nine	do	do	126 00
Attendants (8)	Twelve	do		991 34

Expenses ($15,759.55).

Archer, Geo.: Subscriptions, 24.00; postage stamps, 8.00; playing cards, 5.00; songs and solos, 7.20; stationery, 23.38 ..... 67 58

Allan, W. L. & Co.: Spoons, 3 doz., 3.00; iron, hardware, etc., 58 32; cylinder oil, 42 gals., 31.67; wheelbarrow, 4.50; lawn mower, 7.00; leather belting, 49 feet, 14 84; sperm oil, 5 gals., 8.75. ..... 128 08

Aitchison, F.: Potatoes, 17 bus., 7.80; Am. Medico Psychological Ass'n: Annual dues, 5 00 12 80

Burnett, W.: Pot barley, 196 lbs., 5.88; cracked wheat, 196 lbs., 5,00; split peas, 1 bbl., 5 00; dried apples, 153 lbs., 11.48; figs, 148 lbs., 6.66; currants, 98 lbs., 6.86; fruit jars, 10.80; sal soda, 300 lbs., 3.75; ham, 26 lbs., 3.97; glassware, 9.10; eggs, 82 doz., 9.56; prunes, 1,256 lbs., 87.36; groceries, 67.84; sugar, 1,534 lbs., 65.09; jam, 829 lbs., 66.32; potatoes, 25 bus., 12.63; mustard, 6 lbs., 3.00; seeds, 13.50; whiting, 375 lbs., 5.63; pepper, 25 lbs., 5.75; soap, 4.20 ..... 409 38

Bell Tel. Co.: Installing phone, etc., 64.58; messages, 26.90 ..... 91 48

Bursar: To pay sundries 27 15

Cressman, A. W.: Cotton, 439 yds., 46.95; sheeting, 199 yds., 31.88; blankets, 9 pr., 42.50; curtains, 2 pr., 10.75 ..... 132 08

Campbell, J. N.: Cotton, 263 yds., 21.32; laces, 6 grs., 8.25; boots and shoes, 72 pr., 90.25 119 82

C. P. Industries: Blankets, 100 prs., 271.70; Carruthers, G.: Clothes horses, 2, 10.15.... 281 85

Crozier, H.: Prunes, 50 lbs., 4.00; eggs, 292 doz., 40 46; pickles, 2 doz., 7.25; groceries, 88 00; tea, 200 lbs., 50.00; syrup, 5 gals, 6.25; fruit and vegetables, 71.25; dried apples, 46 lbs., 3.45; bacon and ham, 80 lbs., 12.59 ..... 283 25

Clarke, J. T.: Bibles, 50, 30.00; Copeland-Chatterson Co.: Book leaves, 500, 11.50..... 41 50

Cameron, L. K.: Stationery, etc., 124.87; Clegg, E. B. & Co.: Cartage, 12.90..... 137 77

Cann, Samuel: Ice, 220 tons, 165.00; sawdust, 10 loads, 35.00 ..... 200 00

Collings, W. J.: Castings, 10.90; *Cobourg World*: Printing and adv'tg, 117.50..... 128 40

Cook, Adam & Co.: Blank book, 13.25; Can. Express Co.: Charges, 16.75 ..... 30 00

Cobourg Water & Electric Co.: Water, 349.33; electric light, 420.35..... 769 68

Duncan, Jno.: Potatoes, 161 bus., 78.25; straw, 5.00 ..... 83 25

Denton D.: Plants, 19.85; Eaton, T. & Co.: Couch cover, 6.00..... 25 85

Fair, Robt. & Co.: Gingham, 63 yds., 7.31; shirting, 119 yds., 14.74; linen, 133 yds., 11.85; towelling, 317 yds, 30.18; towels, 3 doz., 10.10; carpet, 62.85; sundries, 3.96 140 99

Fleming, G. E.: Postage stamps, 12.00; Fleischmann & Co.: Yeast, 19.05 ..... 31 05

Ferguson, A. C.: Milk contract, 13,865 qts. at 3¼c, 450.64; 166 qts. at 3½c, 5.81; sundries, 60c 457 05

Fox, Wm. M. & Co.: Tea, 100 lbs., 25.00; syrup, 22 gals., 11.25; sundries, 11.50..... 47 75

Field & Bro.: Pillow cotton, 70 yds., 15.59; lawn, 24 yds., 7.20; cotton, 571 yds., 41.97; sheeting, 1,184 yds., 218 54; buttons, 2.16; muslin, 9 yds., 1 35; galatea, 338 yds, 60.93; sundries, 34.64; damask, 3½ yds., 3.75; thread, 1 grs., 5.50; corsets, 12 pr., 9.00; cretonne, 100 yds., 16.00; shaker, 200 yds., 16.00; print, 160 yds., 19.50; linen, 30 yds., 6.00; towels, 1 doz., 3.50; flannelette, 164 yds., 13.12..... 474 05

Graham, A.: Rolled oats, 14 bbls. at 5.75..... 80 50

Gutta Percha & Rubber Co.: Hospital sheets, 6..... 11 10

Greer, Jos.: Vegetables 8.38; Gould, A. J...Drugs and chemicals, 19.08..... 27 46

G. N. W. Tel. Co.: Telegrams, 6.56; G. T. Railway Co.: Charges and cartage, 87.50..... 94 06

Gripton, C.: Indelible ink, 1 qt., 8.80; stamps, 8.00 ..... 16 80

Green, E. C.: Board of attendants 10 40

Hamilton, W. H.: Sugar, 1,552 lbs., 65.88; tea, 124 lbs., 31.00; rice, 250 lbs., 9.38; coffee, 100 lbs., 25.00; spices, 16 lbs., 4.10; dried apples, 235 lbs., 17.63; bacon, 101 lbs., 15.87; cream tartar, 23 lbs., 8.05; pot barley, 400 lbs., 12.00; beans, 2 bbls., 11.15; blueing, 8 pkgs., 1.92; brooms, 3 doz., 9.00; tubs, ½ doz., 6.50; vinegar, 31 gals., 10.23; baskets, 1 doz., 13.00; cheese, 173 lbs., 17.30; sundries, 29.00; corn meal, 1 bbl., 4.10; cracked wheat, 1 bbl., 5.00; biscuits, 2.37; currants, 50 lbs., 10.88; honey, 106 lbs., 11.66; lard, 50 lbs., 6.63; pepper, 10 lbs., 2.50; syrup, 51½ gals., 23.18; rolled oats, 2 bbls., 12.50; split peas, 1 bbl., 5.00;

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR INSANE, COBOURG.—*Continued.*

EXPENSES.—*Continued.*

pickles, 1 doz., 4.00: pails, 3 doz., 6.75: prunes, 400 lbs., 26.00; raisins, 84 lbs., 5.67; salt, 1 bbl., 3.60; sal soda 336 lbs., 4.20; soap, 3.90; starch, 100 lbs., 6.50 ..... $431 45
Hitchins, R. A.: Meat, 9.00; vegetables, 9.05 ..... 18 05
Hobbs Hardware Co.: Sanitary fluid, 44 gals. 59 40
Hall, Adam: Iron, tinware, etc., 70.08; ice cream freezer, 2.50; scales, 7.50; coffee and tea pots, 12.00; dish pans, 1½ doz., 12.75; pots, kettles, etc., 20.95..... 125 78
Harvey, T. R. & Son: Chambers, 11, 5.90; coffee, 90 lbs., 22.50; cheese, 314 lbs., 32.53; sundries, 26.41; tapioca, 80 lbs., 4.00; pails, 1 doz., 4.25; rice, 150 lbs., 5.25; currants, 100 lbs., 7.00; pepper, 20 lbs., 4.00; flower pots, 4.08..... 115 92
Hayden John: Packing, 47.47; oil, 10 gals, 10.75; engine oil, 87 gals, 43.75; floor brushes, 1 doz, 33 00; sash locks, 5 doz, 7.50; valve discs, 15.60; air valves, 7.50; toilet paper, 9.00; paper holders, 15.40; hardware sundries, 147.26; sperm oil, 10 gals. 27.50; pails, 1 doz, 4.80; galv, cans, 10.90; lanterns, 3, 3.75; screws, 7.99; parafine wax, 30, 5 10 ..... 397 27
Imperial Varnish Co: Oil soap, 244 lbs, 14.64; Institution for Blind: laundry supplies, 6.00. 20 64
Kingan Hardware Co: Assorted spoons, 17½ doz, 37.38; knives and forks, 33 doz, 84.63; sundries, 19.15 ..... 141 16
Kewan, D: Team hire, 11.30; London Ammonia Co: Powder ammonia, 245 lbs, 14.70.. 26 00
Murray, W. A. & Co: Curtains, 2 prs, 12 00; couch covers, 2, 9.00; pillow shams, 3 prs, 4.60; frilling, 108 yds, 5.40; cretonne, 9 yds, 2.25 ..... 33 25
Maher, W. J: Mutton contract, 2,557 lbs, at 8c, 204.56; meat, 61.93: poultry, 11.05: lard, 40 lbs, 5.00 ..... 282 54
Mitchell, E: Seeds, bulbs etc, 6.00; Mullin, B: services in Bursar's office, 367.50..... 373 50
McLaughlin, M. & Co: Flour contract, 177 bbls, at 3.60 ..... 637 20
McCallum, P & Sons: Sundry furnishings, 41.97; cotton, 150 yds. 18.75; linen 140 yds, 19.07; towels, 2 doz. 5.00; napkins, 2 doz, 8.00; muslin, 50 yds, 7.50; shirting, 600 yds, 75 00; flannelette, 50 yds, 4.00; lustre, 20 yds, 10 00; buttons, 11.80; print, 557 yds, 69 69; gingham, 42 yds, 3.40; cheese cloth, 100 yds, 5.00; spools, 1 grs, 5.50; scrim, 135 yds, 24.30; straw hats, 5 doz, 12.00..... 320 98
Macfarlane, Wilson Co: Chambers, 17 doz, 61.20; McMahon, M: Fish, 2,536 lbs, 228.26; sundries, 60 ..... 290 06
McIntosh, J. D: Tea, 160 lbs, 40.00; syrup, 24 gals, 10.80; sugar, 1,198 lbs, 44.19; corn meal, 3 bbls, 13.65; rice, 250 lbs, 8.75; berries, 3.24; pot barley, 1 bbl, 5.88; split peas, 1 bbl, 5.50; potatoes, 10 bu, 6.00; gran wheat, 1 bbl, 6.00; gem jars, 4 doz, 3 60. 147 61
McNicholl, E. C., M.D.: Balce *re* table allowance, 583 33; allowance *re* light & fuel, 233.33. 816 66
McGuan, C: Board of matron, 9.00; Nisbet & Auld: tabling, 123 yds, 64 84..... 73 84
Nelles, A. A: Travelling expenses, 72.55; Ormand & Walsh: Drugs & chemicals, 400.15.. 472 70
Office Specialty Mfg. Co: Fyling case, etc 17 65
Postmaster: Rent of box, 3.65; postage stamps, 14.00 ..... 17 65
Plunkett, Geo: Coal 22 tons at 6.00, 132.00; cannel coal, 1 ton, 7.00; kindling, 4.50; sundries, 16.50; 1901 coal contract, 38 tons 1 940 lbs, at 4.85, 189.00; 1902 contract, stove, egg and nut, 238 tons 1,745 lbs, at 5.90, 1,399.33; special contract, screenings, 22 tons, 1,235 lbs, at 3.60, 81.42; Run of mine, 162 tons, 785 lbs, at 4.53, 735 64..... 2,565 39
Post, K. C: Rubber sheeting 12 yds, 15.00; water bottle, 1 60; drugs & chemicals, 23.59; toilet paper, 5.55; sperm oil, 5 gals, 8.75 ..... 54 49
Ryan, The Wm. Co: Butter con, 3,263 lbs, at 22c,717.86; Rolph Smith Co: Stamping 13.00 730 86
Rooney, D: Eggs, 108 doz, 23.64; butter, 25 lbs, 5 65; potatoes, 85 bu, 40.75; apples, 3 bbls, 10.50; tomatoes & corn, 2 cs, 3.80; peaches & pears, 8 doz cans, 22.15; lard, 40 lbs, 6 00; poultry, 3.40; chambers, 2 doz, 8.50; vegetables, 13.65; salt, 1 bbl, 1.25; sundries, 38.24; bags, 1000, 6.05; bkg, powder, 1 doz, 4.20; tea 150 lbs, 37.50; marmalade, 42 lbs, 3.36; jam, 84 lbs, 6.72; sugar, 946 lbs, 36 93.. 272 29
Sutcliffe, J. & Sons: Sheeting 365 yds. 78.70; curtains, 2 pr, 11.50; towels, 1 doz, 4.29.. 94 49
Sundry newspapers: Subscriptions, 2.00; advertising *re* supplies, 27.07; *re* fuel, 112.00.. 144 07
Sundry persons Cleaning, scrubbing, labor, etc. 210 74
Smith, J. W: Rent allowance, 181.40; trav, expenses, 62 85..... 244 25
Stewart, W. K: Rent allowance 175 00; Taylor, Jno. & Co: Laundry soap 1,900 lbs, 89.17. 264 17
Times Printing Co: Printing, advtg etc, 30.25; blank books, 11.50..... 41 75
Turnbull, A. C: Blank books 21 00
Tait, Nelson: Furniture and repairs, 14 35; interments, 5.00; chairs, 4, 10.00.. ..... 29 35
Thompson, Geo: Beans, 3 bu, 3.45; salt, 2 bb's, 2.50; potatoes, 111 bu, 67.73; sundries, 2.15: evap, apples, 100 lbs, 7.00.. ..... 82 83
Whitelaw, W. R: Milk cans, 4, 19.00; chambers, 3 doz, 15.75; iron, tinware, etc, 28.25... 63 00
Wilson, R: Combs, 24 doz, 48 00; tooth brushes, 6 doz, 18 00; hair brushes, 6 doz, 51.00; parafine wax, 50 lbs, 9.00. stationery, 22.29; postage stamps, 3.00; drugs, 14.28 .... 165 57
Webster, J T: Beef contract, 12,195½ lbs, at 7c, 853.70; meat, 29.89; lard, 80 lbs, 10.40; sundries, 30 ..... 894 29
Warwick Bros. & Rutter: Blank books, 2.65; stationery, ptg, and bdg, 336.95 ..... 339 60
Way, B: Trav, expenses and disbursements, 112.16: services ordering supplies, etc, and opening Bursar's books, 200.00..... 312 16
Sundry persons: Accounts unenumerated under 10.00..... 51 81

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR IDIOTS, ORILLIA.

Salaries ($19,461.20).

A. H. Beaton, M.D.	Twelve months'	salary as Medical Superintendent	$1 800 00
T. J. Moher, M.D.	Five do	Assistant Physician	375 00
T. J. Muir	Twelve do	Bursar	1,300 00
P. McAnley	do	Storekeeper	950 00
R. Stratton	do	Carpenter	550 00
A. Thomson	do	Farmer	450 00
H. Kilpatrick	do	Baker	400 00
J. S Gray	do	Gardener	400 00
J. H. Ross	do	Engineer	800 00
A, Allan	do	Assistant Engineer	300 00
Firemen (4)	do		831 50
R. J. Vasey	do	Laundryman	242 00
A. H. Sissions	do	Chief Male Attendant	361 00
Male Supervisors (2)	do		576 00
Male Attendants (11)	do		2,680 60
Male Night Attendants (2)	do		617 00
A. McLean	do	Tailor	360 00
H. Fletcher	Three do	Stableman	60 00
G. McLarty	Nine do	do	180 00
A. Ingram	Four do	Messenger	80 00
C. Leigh	Eight do	do	160 00
S. E. Hardy	Twelve do	Matron	480 00
B. McKay	do	Assistant Matron	300 00
Teachers (5)	do		1,189 00
Female Attendants (10)	do		1,462 40
Female Night Attendants (2)	do		292 60
Cooks (2)	do		288 00
Maids (9)	do		1,034 60
Laundresses (3)	do		413 50
Seamstresses (3)	do		528 00

Expenses ($45,286.14)

Allen, S: Vinegar, 123 gals, 30.93: Adamson, S. H: Services as plumber, 220.33 ..... 251 26

Atlantic Refining Co: Grease, 50 lbs, 5.00: parafine wax, 209 lbs, 22.99: cylinder oil, 42 gals, 27.30 ..... 55 29

Buchner, A. C: Cups and Saucers, 18 doz, 8.40: glassware, etc, 10.25: groceries, 25.43: fruit jars, ½ gro, 5.10: berries, 35.60: beans, 4 bus, 8.00: plums, 3.00: corn starch, 27.00 ..... 122 78

Blueman, E: Apples, 5 bbls, 5.00: honey, 107 lbs, 10.70 ..... 15 70

Bell, D: Turnips, 83 bus, 8.33: Ball, Jas: Eggs, 471 doz, 75.66 ..... 83 99

Blacker, J. H: Horseshoeing, 23.45: Bingham, W. G: Interments, 82.00 ..... 105 45

Bell Telephone Co: messages 6 25

Beaton, A. H: Bal. re table allowance, 380.49: allowance re furniture and furnishings, 40.80 421 29

Bursar: To pay sundries, 7.82: Coffee, D: turnips, 127 bus, 12.77 ..... 20 59

C. P. Industries: Blankets, 260 pr, 353.65: flannel, 1,355 yds, 388.60: tweed, 2,458 yds, 1,231.13: boots and shoes, 460 pr, 685.60 ..... 2,658 98

Cooke, H. & Co: Drugs and chemicals, 405.60: brooches, 50, 7.50: school requisites, 28.08: stationery, etc, 40.45: sal soda, 20,475 lbs, 173.13: soap, 2.40: subscriptions, 6.50: disinfectant, 40 gals, 48.00: sundries, 23.99 ..... 735 65

Clemes Bros: Cherries, 10 baskets, 14.00: Carmichael, D. G: Blacksmithing, 16.00 ..... 30 00

Cashman, J. J: Straw hats, 12 doz, 14.00: felt hats, 4½ doz, 14.87 ..... 28 87

Currie, A: Potatoes, 23 bus, 9.34: Cruickshank: Services as plumber, 196.14 ..... 205 48

Cotton, D: Turkeys, 487 lbs, 38.96: Cunningham, A: Straw, 4 tons 1,155 lbs, 27.47 ..... 66 43

Crockford, A: Straw, 3 tons 1,655 lbs, 22.97: turnips, 200 bus, 20.01 ..... 42 98

Cameron, L. K: Stationery, etc 31 76

Dominion Laundry Soap Co: Laundry soap, 6,023 lbs 331 21

Dunn, Jos: Groceries, 37.92: lime, 15 bus, 3.75: prunes, 150 lbs, 11.25: seeds, 10.25: corn starch, 80 lbs, 5.60: pears, 12 baskets, 6 00 coffee, 250 lbs, 68.75: chicory, 1 bbl, 13.00 ..... 156 52

Eby Blain Co: Chicory, 404 lbs, 38.39: figs, 405 lbs 16.20: prunes, 739 lbs, 49.84: rice, 500 lbs, 17.50: coffee, 145 lbs. 39 25 ..... 161 18

Ellis, J. W: Yeast, 295 lbs, 88 65: express charges, telegrams, etc, 41.47 ..... 130 12

Frawley, N. J: Spirits for medicinal purposes 7 25

Flett, Lowndes & Co: Buttons, 11 gross 23 65

Fletcher, Jno: Hay, 3 tons 900 lbs, 31 05: Fletcher, Donald: Oats, 246 bus, 105.39 ..... 136 44

Forrester, W: Straw, 1 ton 1,300 lbs, 9.90: Finn, Jno, turnips, 225 bus, 22 54 ..... 32 44

Failes, J: Cutting meat, 48.00: Graham, Thos: Hay, 2,430 lbs, 18.83 ..... 66 83

Graham, A: Rolled oats contract, 36 bbls at 5.75 ..... 207 00

Gunn, R. D: Book case 15.00: Gormley, A: Services as messenger, 10.00 ..... 25 00

Gammon, D: Turnips, 143 bus, 14.33: hardwood, 11¾ cords, 29.38 ..... 43 71

Geach, S. A: Blacksmithing, 10.45: G. T. Railway Co: Charges, 153.23 ..... 163 68

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR IDIOTS, ORILLIA.—*Continued.*

EXPENSES.—*Continued.*

Hatley, Jas. J: Balance 1901 meat contract, 4,618 lbs at 6.60, 304.79: filling cold storage and ice-house as per agreement, 75 00: fish, 526 lbs, 47.39: sausage, 100 lbs, 10 00: poultry, 20 29: suet, 25 lbs, 2 50: sundries, 7 50: bacon and hams, 399 lbs, 58.91: lard, 192 lbs, 24 96: potatoes, 9 bags, 9 13..... $560 47

Hamilton Coffee and Spice Co: Coffee, 850 lbs, 156.00: pepper, 25 lbs, 4.50: mustard, 10 lbs, 2.20..... 162 70

Horne, Jno: Turnips, 269 bus., 26.95: Harvie, A: Plastering, etc, 92 60..... 119 55

Hannah, R. W. Potatoes, 725 bus, 478.90: Hazlett, Wm: Cordwood, 5 cords, 15.00..... 493 90

Harvie, John R. Straw, 4 tons 420 lbs, 21.05: Hay, R Harness supplies, 11.40..... 32 45

Johnston, Ed: Hardwood, 25 cords, 75.00: Johns, F: Straw, 2 tons 1,463 lbs, 16.39..... 91 39

Johnston, Jas: Straw, 3 tons 850 lbs, 17.13: hay, 1 ton 1,670 lbs, 18.35: oats, 44 bus, 20.16 55 64

Johnston, Robt: Turnips, 205 bus, 20.58: Johnstone, J. T: Potatoes, 585 bus, 359.20..... 379 78

Kerr, Albert: Meat contract, 98,316 lbs at 6.55, 6,439.66: sausage, 64 lbs, 6.40: oats, 39 bus, 17.78: lard, 20 lbs, 2.65..... 6,466 49

Kay, Jno. Son & Co: Carpets, 54 yds, 75.53: Lever Bros: Soap, 19.10..... 94 63

Luck, Thos: Hay, 3 tons, 31.84. Long, E. Mfg. Co: Castings, repairs, etc, 90.59..... 122 43

Lamb, M: Apples, 8 bbls, 6.00: turnips and carrots, 48 44..... 54 44

Litster, Jno: Potatoes, 51 bu, 13.26: Lehmann, R. A: Carrots, 111 bu, 13 36..... 26 62

Main, T. A: Sheeting, 253 yds, 33 33: crash, 561 yds, 66.27: shaker, 159 yds, 15.11. yarn, 12 lbs, 4.20: linen, 95 yds, 13.52: ticking, 278 yds, 52.64: mitts, 3 doz, 7.80: starch, 500 lbs, 30.50: hose 213 pr, 48.62: socks, 28 doz, 80.17: cotton, 631 yds, 51 53: spools, 16 doz, 7.68: oilcloth, 60 yds, 15 00: pillow cotton, 36 yds, 4 86: towelling, 263 yds, 31.81: curtains, 1 pr, 3 00: handkerchiefs, 8½ doz, 8.50: flannellette, 128 yds, 11.82: muslin, 42 yds, 4.25: shirting, 857 yds, 107.09: currants, 147 lbs, 9.55: sundries, 62.98..... 670 23

Morrison, Jas., Brass Mfg. Co: Castings, 48.36: packing, 22.58: valves, 17.50..... 88 44

Moore, Chris: Balance 1901 butter contract, 1,166½ lbs, at 18½c, 215.81: 1902 butter contract, 26,132½ lbs, at 17¼c, 4,507.86: eggs, 952 doz, 141.64: sundries, 4.75: starch, 475 lbs, 31,88 socks, 40 prs, 12.00: corn starch, 80 lbs, 5.20 cheese, 438 lbs, 48 97: braces, 8 doz pr, 23.75: straw hats, 6 doz, 8.10: pepper, 29 lbs, 6.67: caps, 4⅝ doz, 14.00: mitts, 7½ doz pr, 24.90: shawls, 6, 11.70..... 5,057 23

Mulcahy, Thos. Shoes, 38 pr, 50 70: moccasins, 28 pr, 34.25..... 84 95

Martin, J: Turnips, 210 bu, 21.09.. Mainer, Robt: Iron, tinware, etc., 48.97..... 70 06

Moriarty, John: Turnips, 104 bu, 10.46: Morrison, E: Rpg boots and shoes, 33.50..... 43 96

Margrett, A: Chairs, 100, 42.00 furniture, 11.75..... 53 75

Moore, Wm. & Son: Prunes, 500 lbs, 36.88: Muir, T J: Trav expenses, 7.85..... 44 73

Moore, Jno: Hardwood, 10 cords, 31.25: Moore, E: Straw, 4 tons 635 lbs, 21.59..... 52 84

Moffatt, T. W. & Co: Fish, 1,523 lbs, 138.61: salmon, 2 doz, 2.00: ciscoes, 6 doz, 1.50..... 142 11

Millar, M: Postage stamps, 112.00: rent of box, 2.00..... 114 00

Murdoch, Jas: Inspection of scales, 6.50 Middleton, W.J: Services temp'ary attendant, 15.18 21 68

Macdonald, Jno. & Co: Sundry furnishings, 31.25: shirting, 2,924 yds, 312.90: denim, 279 yds, 47.37: tweed, 868 yds, 263.48: duck, 101 yds, 12.15: lining, 75 yds, 17.80: serge, 58 yds, 98.60 drawers, 2 doz, 15.50: caps, 4 doz, 7.00: cotton, 2,030 yds, 154.28: towelling, 545 yds, 37.61: cretonne, 55 yds, 8.29: squares, 24.50: warp, 12 bdles, 10.20: spools, 12 grs, 64.80: heavy mole, 238 yds, 37.77: ticking, 278 yds, 43.83: sheeting, 527 yds, 78.30: holland, 456 yds, 57.81: shaker, 154 yds, 15.00: crash, 164 yds, 16.40. socks, doz, 15.00.. mitts, 5 doz, 21.75 1,391 59

McMahon, Broadfield & Co: Plates, 12 doz, 9.40: teas, 18 doz, 14.40: china, glassware, etc., 16.82: covered dishes, 1 doz, 5.60..... 46 22

MacNab, Bros: Table knives, 15 doz, 52.00: carvers, 6 pr, 8.25: clothes baskets, 2 doz, 20.17: iron, hardware, etc., 251.11: mitts, 2½ doz, 10.75: spoons, 2 doz, 3.50. glass, 27.25: chambers, 8 doz, 52.00: plaster paris, 2 bbls, 5.00: keys, 8.50: fire brick, 1,300, 54.50: fire clay, 693 lbs, 6.93: cement, 5 bbls, 13.00: whitelead, 400 lbs, 24.50: clippers, 2 pr, 4.00: granite cups and plates, 8 doz, 9.60: leather belting, 98 ft, 23.23: coal oil, 200 gals, 33.00..... 607 29

McKerroll, Jas: Candy, 237 lbs, 16.59: nuts, 100 lbs, 12.00: raisins, 39 lbs. 3.61: lemons, 1.00: baking powder, 63.25: corn starch, 200 lbs, 13.00: sundries, 39.23: peaches, 12 baskets, 7.80..... 156 48

McKenzie, Jas: Coal oil, 95 gals, 15.68: McKinnon, D. C: Straw, 1 ton 1,300 lbs, 8.15.. 23 83

McDonald, D: Straw 1 ton 470 lbs, 7.41: McLean, P. W: Straw, 8 tons 270 lbs, 48.81.. 56 22

McKay & Co: Yarn, 132 lbs, 46.20: McKinnon, L. J: Socks, 50 prs, 15.00..... 61 20

McPhee, A: Turkey, 402 lbs, 32.20 hardwood, 5 cords, 16.25..... 48 45

McAlpin Tobacco Co: Tobacco, 64 lbs..... 22 40

McWilliams, V. H: Services as asst physician..... 348 00

McReynolds, Thos: Music supplied, 13.00: Nichol, W.J. & Co: Tea, 2,600 lbs, 494.00..... 507 00

Nelson, H. W. & Co: Brooms, 75 doz, 214 87: matches, 5 cs, 15.50: scrub brushes, 30 doz, 45.00: harmonicas, 9 doz, 6.83: asstd brushes, 2 doz, 6 80: sundries, 20 58: soap, 30 doz, 22.98. 332 56

Noithway, John & Co: Eggs, 80 doz, 3.60: shade cloth, 30 yds, 7.80..... 11 40

Northey Co: Valves, 8.75. O'Connor, P: Oats, 137 bu, 44.05..... 52 80

Perry & Alport: Handkerchiefs, 50 doz, 33.50: ribbon, 350 yds, 33.50: lace, 175 yds, 8.75: muslin, 314 yds, 31 40: collars, 4 doz, 6 25: ties, 50, 8.50: socks, 150 pr, 45.00.. shirting, 1,418 yds, 167.32: cotton, 708 yds, 65.02: ticking, 543 yds, 106.40:

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ASYLUM FOR IDIOTS, ORILLIA.—*Continued.*

EXPENSES.—*Continued.*

spools, 40 doz, 19.20: cretonne, 24 yds, 3.60: cottonade, 26 yds, 5.04: pillow cotton, 43 yds, 5.01 curtains, 4 pr, 13.50: flannelette, 201 yds, 23.12: yarn, 60 lbs, 20.10: sheeting, 1,477 yds, 295.50: print, 201 yds, 22.66: linen, 249 yds, 39 39: sundries, 57.99. duck, 75 yds, 10.83: hose, 179 pr, 42 23. napkins, 2 doz, 5.00: towels, 2 doz, 5 80: towelling, 66 yds, 7.59: lawn, 109 yds, 21.80. $1,104 00

Powell, Wm: Turnips, 399 bu, 39 90. Perryman, Wm: Hay, 1 ton 175 lbs, 10 88..... 50 78

Perryman, H: Hay, 11 tons 320 lbs, 98 04: oats, 74 bu, 37.06: sundries, 2.00..... 137 10

Queen City Oil Co: Parafine candles, 12 cs, 41.28: cylinder oil, 121 gals, 79.88: coal oil, 46 gals, 7.34: gas oil, 5,030 gals, 398.88: parafine wax, 516 lbs, 41.28: engine oil, 81 gals, 22 61 ..... 594 27

Rogers, Elias, Co: Balance 1901 coal contract, soft scgs, 323 tons 780 lbs, at 3.43, 1,109.22: (not contract) 110 tons 875 lbs soft scgs at 4.05,447.27: 67 tons 190 lbs run of mine at 4.90, 328.76: 1902 coal contract, stove, 32 tons 140 lbs at 6.25, 200.43: soft scgs 1,659 tons 1,680 lbs at 3.89, 6,456.76..... 8,542 44

Robbins, T. W: Sugar, 15,107 lbs, 525.34: lard, 300 lbs, 36 ..... 561 34

Reardon, M: Turnips, 106 bu, 10.68: Regan, J. R. Turnips, 123 bu, 12.35..... 23 03

Regan, M O: Turnips, 212 bu, 21.28: Regan, D. Apples, 22 bbls, 20.00 ..... 41 28

Regan, Thos. Turnips, 240 bu, 23.93: potatoes, 29 bags, 26.10 ..... 50 03

Rowe, H: Hardwood 20 cords, 72.90: Robinson, C: Socks, 50 prs, 15.00 ..... 87 90

Ratcliffe, E: Hay, 9 tons 1,530 lbs, 95.94: oats, 120 bu, 57.16: potatoes, 35 bags, 19.50. apples, 5 bbls, 5.00..... 177 60

Ross, Jno: Horseshoeing, 19.25: Ralston, Jno: Horseshoeing, 32.60 ..... 51 85

Strathroy Canning Co: Vegetables 22 doz cans, 19.42: fruit, 6 doz cans, 9.00: pork and beans, 2 doz cans, 2.10: apples, 2 gals, 5.50: chicken soup, 4 doz cans, 5.00 ... 41 02

Scott, Robt: Straw, 2 tons 1,910 lbs, 17.73: hay, 14 tons 868 lbs, 107.82: pasture rent, 40.00. 165 55

Sundry newspapers: Advertising *re* supplies, 103.00: *re* fuel, 163.50 ..... 266 50

St Charles, W.P: Trav expenses, 10.70 Smith, R. O. & Co Stationery, 32.47 ..... 43 17

Shaw, Henry: Oats, 107 bu, 32.21: Smith & Lawrason: Powder ammonia, 324 lbs, 19.44 51 65

Taylor, John & Co: Toilet soap, 202 boxes, 487.65: Tudhope & Co: Horse blankets, 2 pr, 8.25 495 90

Tait, A: Stove coal, 10 tons 1,045 lbs at 7.50, 78.92: 26 tons 35 lbs at 6.50, 169 11: lumber, 6.743 ft, 103.58 sundries, 22.11 ..... 373 72

Thomlinson, Jno. A: Hay, 4 tons 975 lbs 44 88

Thompson, W. & J, V.S: Professional services and medicines 7 75

Thompson, D.C: Turkeys, 87 lbs, 7.00: potatoes, 219 bags, 169.15: straw, 2 tons 1,280 lbs, 13.20 189 35

Times Printing Co: Printing and advtg, 127.75: manilla cases, 1,000. 25 00 ..... 152 75

Thompson, Jos, V.S: Medicines, 7.50 United Factories' Pads, 5 doz, 8.50..... 16 00

Vick, Geo. & Sons: Balance 1901 Oatmeal contract—2 bbls, at 3.80, 7 60: 1902 flour contract—1,149½ bbls, at 3.63, 4,172.70: bran, 18 tons 1,200 lbs, 348.05: shorts, 6 tons 1,800 lbs, 144.95: figs, 1,173 lbs, 74.10: pepper, 63 lbs, 12.82: pot barley, 296 lbs, 9.00: prunes, 395 lbs, 33.82: currants, 291 lbs, 19.66: eggs, 125 doz, 15.80: molasses, 44 gals, 14.13: syrup, 633 lbs, 20.57: sugar, 318 lbs, 13.52: sundries, 17.02: tapioca, 333 lbs, 14.07: rice, 3,150 lbs, 122.85: corn starch, 80 lbs, 5.00: tobacco, 8 lbs, 3.44: beans, 15 bush, 22.70: corn, 5 bush, 6.25: fruit jars, 12 doz, 9.60: raisins, 5.60..... 5,093 25

Watkins, T.C: Suiting, 312 yds, 56.25: Warwick Bro's & Rutter: Printing and b'd'g, 21.38 77 63

Warren, M: Lard, 80 lbs, 10.00: bacon, 17 lbs, 2.77: sundries, 14.58 ..... 27 35

Weeks, L. M: Tea, 100 lbs, 18.00: coffee, 250 lbs, 73.75: chicory, 181 lbs, 16.29 ... 108 04

Wilson, J. H: Sugar, 18,592 lbs, 666.53: syrup, 4,751 lbs, 139.79. salt, 35 bbls, 45.50: sago, 130 lbs, 5.85: corn meal, 4 bags, 8.80: currants, 238 lbs, 16.20 sundries, 6.11: rice, 698 lbs, 26.27: lard, 590 lbs, 70.88: cranberries, 1.20 tapioca, 151 lbs, 6.04: prunes, 300 lbs, 22.50: lemons, 2 cs, 5.50: molasses, 93 gals, 27.90: tea, 559 lbs, 106.21 1,155 28

Wainwright, A. H: Harness supplies, 7.80: robes, 2, 20.00 ..... 27 80

Woods, S: Apples, 4 bbls, 2.81: turnips and mangolds, 480 bush, 50.84: potatoes, 7½ bags, 6.80..... 60 45

Wood, Alex: Straw, 1 ton, 5.85: Walsh, Jas: Straw, 2 tons, 11.99..... 17 84

Wickens, A. M: Travelling expenses *re* inspection of boilers 14 50

World Furnishing Co: Interments, 66.00: carpet, 20.00: sundries, 19.40: rugs, 55.00: letter press stand, 10.00: pillows, ½ doz, 9.00: table, 7.00..... 186 40

Sundry persons: Accounts unenumerated under 10.00 ..... 110 05

CENTRAL PRISON, TORONTO.

SALARIES ($25,121.08).

J. T. Gilmour, M.D	Twelve months' salary as	Warden	2,000 00
M. Logan	do	Deputy Warden	1,299 96
W. Sloan, M. D	do	Physician	900 00
A. Jaffray	do	Bursar	1,300 00
J. M. Campbell	do	Storekeeper	800 00
G. W. Edgar	do	Clerk and Librarian	900 00

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

CENTRAL PRISON, TORONTO.—*Continued.*

SALARIES.—*Continued.*

J. O. Anderson	Twelve months' salary as	Accountant	$450 00
F. W. Lyons	do	Sergeant	799 98
A. Sangster	do	Cook and Baker	650 00
W. Crackle	do	Mason	700 00
W. R. Hardy	do	Carpenter	600 00
D. Moody	do	Assistant Carpenter	600 00
W. W. Mason	do	Engineer	800 00
Guards (25)	do		13,321 14

EXPENSES ($37,327.24).

Aikenhead Hardware: Wrenches, 6, 11.10: hardware sundries, 14.94		26 04
Applegath, Jess: Fur cap, 6.00: uniform caps, 1 doz, 21.00		27 00
Addison & Mainprice: Letter heads, 22.00: Brown, S: Rep'g vehicles, 15.55		37 55
Brown, Alex, & Co: Balance 1901 Flour contract—38 bbls, at 3.30		125 40
Brown Bros: Stationery, 7.00: blank books, 12.50		19 50
Boeckh Bros. & Co: Shoe brushes, 8.40: sundries, 1.20		9 60
Brown Bros. Co: Plants and bulbs, 10.50: Bingham, G. A: Drugs and chemicals, 172.78		183 28
Bursar: To pay sundries		43 92
C. P. Industries: Bedding, 265.81: clothing, 4,376.70: boots and shoes, 1,799.20: cleaning, 727.13: fuel, 596.40: furnishings, 121.15: stable, 159.69: repairs, 696.64		8,742 72
Clemes Bros: Berries, 28.62: peaches, 3.30: apples, 7 bbls, 11.75		43 67
Coles, Geo: Breadstuffs, 3.20: waiters, 5, 10.00		13 20
Chandler & Massey: Surgical appliances, 28.56: Carter, E.T: Hemlock ext't, 455 lbs, 18.20		46 76
Crawford, Jas: Balance 1901 Potato contract—75 bush, at 35c		26 25
Canada Biscuit Co: Biscuits, 85 lbs, 6.63: jam, 95 lbs, 5.70		12 33
Can. Gen. Electric Co: Elec. fittings, 13.61: Cameron, L. K: Stationery, 83.57		97 18
Cummings & Sellers: Fur caps 2, 12.00: Campbell, Alex: Ser. temp'y carpenter, 675.23		687 23
Consumers' Gas Co: Gas, 771.12: C.P.R. Telegraph Co: Telegrams, 2.30		773 42
Carbon Studio: Photo, 5.00: Doyle, The M. Fish Co: Fish, 3,200 lbs, 240.00		245 00
Davis, Jno. & Son: Flower pots, 186.90: Dennis, C. H: Apples, 4 bbls, 6.45		193 35
Deverell, A.D: Drugs and chemicals, 116.46: Duncan, J. T, M.D: Pro. services, 5.00		121 46
Eaton, The T. Co: Wringer, 5.00: East India Tea Co: Tea, 207 lbs, 43.15		48 15
Eakins & Ferris: Photo supplies, 48.42: Fleischmann & Co: Yeast, 173 lbs, 51.90		100 32
Fraser, G. B.: Tabling, 39 yds, 17.55: Flynn, Thos.: Earth, 26 loads, 26.00		43 55
Fairweather, J.W.T.: Fur caps, 2, 12.00: Grenadier Ice & Coal Co.: Ice, 212 tons, 106.25		118 25
Gunn, D Bros. Co.: Turkeys, 305 lbs., 35.15: evap. apples, 352 lbs., 35.88: bacon and hams, 780 lbs., 106.24: cheese, 399 lbs., 44.12: beans, 134 bus., 203.88: pot barley, 63 60: short cut pork, 41 bbls., 907.60: eggs, 960 doz, 164 85: cottolene, 450 lbs., 49.77: salt, 38 sacks, 37.45: mince meat, 120 lbs., 8.55: sundries, 18.75: lard, 220 lbs, 24.56: pickles, 1 pail, 4.50		1,704 90
Globe Chemical Co.: Disinfectant 50 gals., 25.00: Globe Ptg. Co.: Subscriptions, 10.00		35 00
Gutta Percha & Rubber Mfg. Co.: Rubber boots, 10 prs., 30.37: rubber pack'g, 100 ft., 10.50: gaskets, 8 lbs., 4.19: sundries, 3.13: packing, 43 lbs., 10.88: waterproof coat, 17.00		76 07
Guinane, Jno.: Boots, 14 pr., 56 00: Graham, A.: Rolled oats con., 60 bbls. at 5,75, 345.00		401 00
Gurney Foundry Co.: Oven grates, 5, 13.00: repairs, 4.38		17 38
Gilmour, J. T.: Allowance *re* table supplies and furnishings, 695 25: expenses attending convention, 75.00		770 25
G.N W. Tel. Co: Telegrams, 4.44: G. T. Railway Co.: Charges, 5.12: rails, 45.76		55 32
Hunter, Moses: Oats, 759 bus., 354.25: straw, 3,374 lbs., 12.59: hay, 14 tons, 587 lbs., 191.94: bran, 4 tons, 1,822 lbs., 92.92: corn meal, 259 lbs., 3.88		655 58
Howland, H. S. Sons & Co: Iron, hardware, etc., 107.30: scoops, 18, 17.24: shovels, 1 doz., 2.80: twine, 10 lbs., 2.90: fibre pails, 4 doz., 14.00: scrub brushes, 12 doz., 25.92		170 16
Hobbs Hardware Co.: Sanitary fluid, 131 gals., 174.92: Hurd & Price: Livery hire, 8.00		182 92
Hall, F. & Son: Gloves, 6 prs., 6.00: mitts, 3 doz. pr., 9.00		15 00
Harris, Dr.: Professional services, 33.00: Harris, The E. Co.: Marking ink, 15.70		48 70
Hartz, The J. F. Co.: Vaccine, 5 cases, 3.75: surgical appliances, 52.60		56 35
Hunter, R.: Purchase of meat, 6,429.48: exchange on cows, 92.00		6,521 48
Jarvis, F. C.: Apples, 10 bbls., 12.00: Jeffrey & Eakins: Photo supplies, 45.39		57 39
Junor, Wm.: Jugs, 2½ doz., 15.20: bakers, 6 doz., 9.78: pie plates, 2 doz., 2.75: tumblers, 2 grs., 15.00: chinaware, etc., 5.00: plates, 3 doz., 2.25: fruit jars, 6 doz., 3.90: covered dishes, 1 doz., 9.00		62 88
Kay, Jno. Son & Co.: Blinds, 10.05: awnings, 18.10: mats, 6, 11.75: sundries, 1.07		40 97
Kilgour Bros.: Tags, 3,000, 2.05: sacks, 1,000, 25.00		27 05
Ko-Ri-Za Chemical Co.: Disinfectant, 255 gals., 143.00: King, W. J.: Postage stamps, 182.00		325 00
Kearns, W. P.: Repairing harness		7 30
Lumsden Bros.: Tobacco, 484 lbs., 314.60: sugar, 11,959 lbs., 422.81: biscuits, 13.53: molasses, 5,215 lbs., 104.61: corn starch, 160 lbs., 10.90: currants, 897 lbs., 59.27: hoop pails, 6 doz., 18.90: raisins, 519 lbs., 48.23: rice, 4,600 lbs., 163.50: nuts, 4.00: mince meat, 60 lbs., 5.10: jam, 283 lbs., 19.89: tapioca, 40 lbs. 1.60: coffee, 55 lbs., 15.50: peas, 2 doz. cans, 2.20: evap. apples, 100 lbs., 11.00:		

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

CENTRAL PRISON, TORONTO.—*Continued.*

EXPENSES.—*Continued.*

shaving soap, 2 gross, 12.00: baking powder, 120 tins, 22.62: sundries, 63.56: matches, 1 case, 4.20: soap, 48.00: figs, 225 lbs., 9.57: corn and tomatoes, 12 doz. cans, 11.20: syrup, 3,687 lbs., 126.27: pails, 2 doz., 3.60: sauce, ½ doz., 3.25: candles, 36 lbs., 4.50	$1,524 41
Livingstone, E. J. & Co.: Manilla tissue, 40 reams	38 00
Menzie Mfg. Co.: Window shades	16 24
Maloney, John & Co.: Lime, 9,900 lbs., 31.27: stone, 14.00: pipe, 21.97: cement, 31 bbls., 77.50: cartage, 3.85: sundries, 5.00	153 59
Might Directories: Directory, 5.00: Marsh Mfg.: Soap, 12 cases, 48.00	53 00
Macdonald, Jno. & Co.: Handkerchiefs, 9.00: table oil cloth, 9.60: towels, 5.00	23 60
MacGregor Gourlay Co.: Mitre machine	22 50
McKinley, A. T. & Co.: Manilla tissue, 60 reams	57 00
McLaughlin, M. & Co.: Flour contract, 973 bbls. at 3.32½	3,235 25
McIntosh, P. & Son: (Bal 1901), split peas contract, 6 bbls. at 3.75, 22.50: potato contract (1902) 1,729½ bus. at 65c, 1,124.26	1,146 76
Nelson, H. W. & Co.: Brooms, 42 doz., 113.61: whisks, 4 doz., 6.58: scrub brushes, 6 doz., 13.05: pails, 3 doz., 5.10: sundries, 67c	139 01
National Prison Ass'n: Membership dues, 10.00. Noxon Co.: Cultivator, 8.00	18 00
Ontario Wind Engine & Pump Co.: Rep. pump	12 50
Polson Iron Works: Repairs to boiler	75 95
Physicians & Surgeons Supply Co.: Surgical appliances	7 63
Prisoners Aid Ass'n: Cab hire *re* religious services	562 50
Queen City Oil Co.: Coal oil, 91 gals., 15.25: Rice Lewis & Son: Iron clamps, spikes, etc, 18.13	33 38
Ryan, The Wm. Co.: (Bal. 1901) butter contract, 299 lbs. at 19c, 56.81: split peas contract (1902), 42 bbls. at 4.50, 189.00: salt pork, 14 bbls., 292.00	537 81
Rogers, The Elias Co.: (Bal. 1901 coal con.), sofc scr'gs., 214 tons, 1,600 lbs., at 2.53, 543.44: cannel coal, 1 ton, 6.00: (1902 con.), soft coal, 317 tons 100 lbs. at 3.38, 1,071.63	1,621 07
Rutherford, Marshall & Co.: Butter contract, 1,807 lbs. at 16¾c	302 75
Robertson, The Jas. Co.: Self closing taps, 18, 45.00: valves, 6.60: castings and rep., 53.33	104 93
Rice, The T. G. Wire Mfg. Co.: Wire cloth	27 39
Remington Typewriter Co.: Rep. typewriter	10 00
Roberts, E. H.: Rep. locks, 3.90: keys, 12, 5.00	8 90
Robinson & Heath: Duty charges, 13.50 Stanway, Geo. Co.: Tea, 786 lbs., 188.39	201 89
Simpson, The R. Co.: Shirts, 90 doz., 535.00. handkerchiefs, 12 doz., 12.00: towels, 4.00: gloves, 59 pr., 59.00: cotton, 63 yards, 3.15: mats, 6, 12.00: boots, 10 pr., 40.00: straw hats, 5 doz., 27.50 Dominion Ensign, 10.00: sundries, 4.60	707 25
Standard Vinegar Co.: Vinegar, 84 gals., 29.64: barrels, 4.00	33 64
Sparrow, Geo. & Co.: Fire brick, 11.50 boiler, 95.00: repairs, 29.90	136 40
Smith, J. B. & Sons: Dressed lumber, 64.98: Smith, Walter. Harland: Horse, 200.00	264 98
Stanners, A. C.: Spectacles, 10½ doz. pr., 26.25: repairs, 75c.	27 00
Shuttleworth, E. B. Chemical Co.: Chemicals, etc	25 45
Sheppard, Chas. E.: Blacksmithing	19 55
Sundry newspapers: Subscriptions, 17.25: adv'tg. *re* supplies, 103.00: *re* fuel, 157.50	277 75
Simmers, J. A.: Seeds, bulbs, etc	242 66
St. Michael's Cathedral: Cab hire *re* religious services	312 50
Sundry persons: Allowance for overwork and good conduct	184 75
Toronto Coffee & Spice Co.: Coffee, 1,450 lbs., 286.00: vanilla, 12.50: pepper, 400 lbs., 80.00: baking powder, 80 lbs., 14.40	392 90
Toronto Railway Co.: Car tickets, 105.00: Toronto Electric Light Co.: Light, 88.85	193 85
Taylor, Jno. & Co.: Laundry soap, 3,108 lbs., 118.72: toilet soap, 31 boxes, 111.60: sal soda, 448 lbs., 4.48	234 80
Toronto Railway Guide Co.: Subscription	6 30
United Factories: Shoe brushes, 6 sets, 7.56: stable brooms, 2, 1.20: w.w. heads, 1 doz. 24.12	32 88
Whimster, Jas.: Crash, 1,309 yards, 129.96: cotton, 752 yds., 57.23: sundries, 1.25: boots, 2 pr., 8.00: sheeting, 34 yds., 5.87	202 31
Woltz Mfg. Co.: Picture m'ld'g, 6.30 Wilson, Lytle, Badgerow Co.: Vinegar, 43 gals, 10.75	17 05
Wood Vallance & Co.: Cartridges, 15.75: paint, 2.00	17 75
Worrell Mfg. Co.: Exterminator, 25 gals, 50.00: White, R.: Special police services, 10.00	60 00
Warwick Bro's & Rutter: Printing and binding, 76.39: Water Works Dept.: Water, 705.05	781 44
Yates, Geo.: Work on cottage, etc	139 25
Sundry persons: Accounts unenumerated under 10.00	66 89

REFORMATORY FOR BOYS, PENETANGUISHENE.

SALARIES ($13,146 58).

Thos. McCrosson	Twelve months salary as	Superintendent	1,800 00
R. H. Stedman	do	Deputy do	1,000 00
Wm. P. Band	do	Bursar and Storekeeper	950 00
P. H. Spohn, M. D.	do	Surgeon	700 00
Rev. Stephen Card	do	Protestant Chaplain	500 00

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

REFORMATORY FOR BOYS, PENETANGUISHENE.—*Continued.*

SALARIES.—*Continued.*

Rev. T. F. Laboureau	Twelve months'	salary as	Roman Catholic Chaplain	$500 00
D. F. Wright	do		Protestant School Teacher	600 00
Jas. Donergan	do		Roman Catholic do	600 00
W. H. Smith	do		Carpenter	600 00
R. C. Trott	do		Engineer	600 00
Wm. Sale	do		Baker	450 00
L. E. Lane	do		Tailor	600 00
Thos. Harford	do		Gardener	400 00
Donald Rae	Seven do		Night Guard	291 62
Thos. Fitzpatrick	Twelve do		Chief do	500 00
D. Redmond	do		Farm Attendant	500 00
Guards	(4) do			1,994 96
Jos. Lemoine	do		Laundryman	400 00
Alma Lemoine	Services as		Roman Catholic Organist	80 00
Ada D. Newton	do	Protestant	do	80 00

EXPENSES ($15,772.68).

Allan, A. A. & Co: Fur caps, 3, 17.75: Allen, Jas: Services temporary guard, 99.99: 117 74
Allen, Henry: Exps recovering eloper, 6.75: Braithwaite, Jos: Straw, 4 tons, 1,220 lbs, 34.58: 41 33
Brown, Bros Stationery, 3.15: blank books, 39 05 42 20
Beck, C. Mfg. Co: Salt, 21 bbls, 25.00: apples, 4 bbls, 7.00: potatoes, 36 bags, 24.00: hats, 16, 14 00: harness repairs, 24.17: groceries, 6.55. furnishings, 3.25: braces, 12½ doz pr, 56 25: horse blankets, 4.00 164 22
Blondin, Chas: Straw, 3,800 lbs, 13.88 Beausoliel Eli: Cordwood, 241⅔ cords, 380.82: 394 70
Bell Telephone Co: Messages 22 59
Bogardus, C: Services night fireman 15 00
Canada Iron Furnace Co: Coke, 36 tons, 1,100 lbs 255 85
Charlebois, Bros: Salt, 12 bbls, 15.25: socks, 48 prs, 12.00: raisins, 2.25: currants, 2.48 31 98
Campbell, Rev. Isaac: Cab hire, *re* religious services 25 00
C. P. Industries: Tweed 3,849 yds, 1,926 99 bankets, 100 pr, 141.20: flannel, 913 yds, 378.20: boots and shoes, 48 pr, 72.00: long boots, 1 pr, 8.50: sundries, 8.00. 2,534 89
Copeland, G. & Sons: Bran, 2 tons, 200 lbs, 40.95: ch, feed, 5 tons, 1,695 lbs, 138.10: flour, 13 bbls, 52.00 231 05
Clark, Jno. C: Use of machinery unloading coal, 53.39: Cameron, L. K: Stationery, 58.69 112 08
Carbon Studio: Photo, 5.60: *Church Record*: Books, 7.50 13 10
Day, Isaac: Inspection of schools, 40 00 Dineen, W. & D. Co: Hats, 22.20 62 20
Dewell, J. Treas: Grant on acct, of exemption of school rates of resident officials children 150 00
Darling, J. S: Stamped envelopes, 2,000, 44.00: postage stamps, 71.50: messages, 14.54 130 04
Eckardt, H. P. & Co: Sugar, 610 lbs, 25.79: syrup, 388 gals, 136.51: blacking, 1¾ grs, 15.70: pepper, 50 lbs, 9.00: raisins, 112 lbs. 8.26. currants, 40 lbs, 2.95: corn meal, 11 bbls, 44 55: sal soda, 750 lbs, 6 57 coffee, 591 lbs, 44.32: beans, 23 bu, 21.08: pot barley, 3 bags, 6.75: rolled wheat, 1 bbl, 2.40: rolled oats, 1 bag, 2.20: sundries, 36.29 362 42
Eddy, The E. B. Co: Toilet paper, 2 cases, 17.00: Eagle, Henry: Hay, 10 tons, 60.00 77 00
Flett, Lowndes Co: Canvas, 450 yds, 63.19: cotton thread, 6 gro, 32.40: buttons, 17.00: linen thread, 46 lbs, 103.50: silesia, 308 yds, 65.91: italian, 110 yds, 99.00: twist, 1¾ lbs, 17.00: holland, 146 yds, 27.74: tape measures, 1 doz, 3 00: braid, 1 gro, 9.50: thimbles, 2 gro, 5.50. sundries, 11.61 455 35
Foster, Jas: Zinc for battery, 2 00: dials, 1 set, 7.50 9 50
Fleischmann & Co: Yeast, 20.57: postage, 11.69 Flint, R: Paint, 7.50 39 76
Fraser, G. B: Cotton, 968 yds, 90.48: sheeting, 191 yds, 57.31: serge, 17 yds, 44.40: canvas, 50 yds, 8.00 crash, 320 yds, 25.60 cottonade, 214 yds, 41.46: duck, 53 yds, 6.36: sundries, .15: shirting, 338 yds, 45.66 319 42
Gendron, M. A: Brushes, 2 doz, 6.80 glue, 34 lbs, 6.44: register, 4.50: whiting, 2 bbls, 7.00: iron, tinware, etc. 64.29: glass, 12.00: white lead, 100 lbs, 7.00: iron, 107 lbs, 8.03: garden tools, 3 97: pails, 1 doz, 3.00: tailor's stove, 8.50: boiled oil, 44 gals, 35.20: nails, 2 kegs, 6.00 turpentine, 5 gals, 4.50: putty, 102 lbs, 3.32. 180 55
Goodfellow, Bros: Printing and advertising, 7.30: subscription, 2.00 9 30
Grozelle, Josephine: Socks, 42 pr, 10.50: Grozelle, Rachel: Socks, 39 pr, 9.75 20 25
Grant Hamilton Oil Co: Engine oil, 87 gals, 35.75: cylinder oil, 56 gals, 38.61: soap, 12 cases, 25.80: oil soap, 114 lbs. 11.40 111 56
Graham, Jas: Hay, 4 tons, 900 lbs, 52.29: Gutta Percha Mfg. Co: hose, couplings etc 9.00 61 29
Gendron, S. A: Sewing machines, 2, 80.00: oil, 2.00 82 00
Gendron, C. G: Repg, boots and shoes, 86.75: boots and shoes, 172 pr, 261.00: hay, 5 tons, 60.60: mitts, 72 pr, 18.00 soles, 372 prs, 186.50 sundries, 5.70 618 55
G. T. Railway Co: Freight charges, 49.39 Hobbs Hardware Co: Sanitary fluid, 44 gals, 59.40 108 79
Hunt, Bros: Flour contract, 325 bbls, at 3.68 1,196 00
Henderson, Peter & Co Seeds, bulbs, etc, 18.71: Hewson, E. J Printing, 22.00 40 71
Hall, Z. A: Boiler purge, 40 gals, 12.00 Ingram, W: Bricklaying and repairs, 18.13. 30 13
Institution for Deaf & Dumb: Boots and shoes, 24 prs, 51.00: baskets, 16, 11.20 62 20
Johnston, Alex: Hauling coke, 30 00: Jamieson, J Braces, 10 doz, 25.00 55 00
King, Geo: Oats 385 bu, 195.91: straw, 6 tons, 750 lbs, 47.82 243 73

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

REFORMATORY FOR BOYS, PENETANGUISHENE.—*Continued.*

EXPENSES.—*Continued.*

King, Wm: Reward capturing eloper, 10.00: King, Jas: Delivering coal, 12.80	$ 22 80
Kingston, Rev. G. M: Cab hire *re* religious services	50 00
Laboureau, T. F: Commutation *re* free house, light, fuel & water, 95.96: exps, in chapel, 30.00.	129 96
Morrison, The Jas. Brass Co: Iron pipe, castings, etc	163 32
Michand, Jno: Wands and axe handles	10 80
McCrosson, Thos: Balce *re* table allowance, 532.86: allowance *re* furniture & furnishings 121.80 trav, expenses, 84.00	738 66
Nisbet & Auld: serge, 169 yds, 329.58: s'dry cloth, 7 yds, 19.01: buttons, 2.70: oil cloth, 13.50.	364 79
Nelson, H. W. & Co: Brooms, 9 doz, 25.20: stable brooms, 1 doz, 2.88: sundries, 3.36.	31 44
Nettleton, Chas. A: Drugs & chem, 83.77: wall paper, 20.27: staty, 5.30: subscriptions, 8.00.	117 34
Payette, P. & Co: Cast'gs, reps, etc, 13.02: P. & M. E. St. Ry. Light & Power Co: Elec light, 600.00	613 02
Penetang Nav. Co: Ser steamer "John Lee", 25.00: Penetang Ptg & Pub. Co: Ptg, etc, 39.25.	64 25
Playfair Preston Co: Peaches, 12 baskets, 10.80: apples, 4 bbls, 10.00	20 80
Pratt, D. S: Hard coal, 1 ton, 250 lbs	7 31
Rennie, Wm: Seeds, bulbs, etc, 135.21: flower pots, 17.65	152 86
Rogers, Elias Co: Egg coal, 20 ton, 300 lbs at 5.50, 110.83: 1902 contract, screenings, 875 tons, 800 lbs at 2.38, 2,083.45	2,194 28
Reid & Brown: Grate bars, 842 lbs, 50.52: castings, 27.75	78 27
Ross, H. H: Express charges, 22.42: Robinson, Geo: Livery hire, 10.00	32 42
Simpson, Robt Co: Waterproof coat, 8.15: Spooner, A. W: Phenyle, 1 bbl, 30.00	38 15
Sundry Newspapers: Advertising *re* supplies. 68.00: *re* fuel, 119.50	187 50
Sadlier, D. & J. & Co: Prayer books, 32, 9.60: chapel supplies, 6.90	16 50
Shanahan Carriage Co: Rep vehicles, etc, etc, 77.13: Smith, F. J: Cab hire *re* elopers, 13.25.	90 38
Taylor, Jno. & Co: Laundry soap, 2196 lbs, 87.84: toilet soap, 3 boxes, 10.80	98 64
Toronto Cap Mfg Co: Peak caps, 1 gro, 18.00: uniform caps, 3, 4.50	22 50
Toronto News Co: Books, periodicals, etc, 31.96: Tessier, A: Lumber, 17.20	49 16
Wyld Darling Co: Shirting, 288 yds, 34.62: crash, 191 yds, 15.78	50 40
Wright, C. E: Balance 1901 meat contract, 647 lbs at 6.64, 42.96: 1902 contract, 10,085 lbs at 6.74, 679.72	722 68
Wright, G. H: Iron, hardware, etc, 59.50: castings, 7.76: glass, 102.66: putty, 200 lbs, 5.60: white lead, 300 lbs, 21.00: oil, 47 gals, 10.48: lamps, 44, 4.40: shears, 6 pr, 5.40: scoops, 12, 12.30: brushes, 18.70: rope, 4.05: granite cups, 4 doz, 7.00: nails, 5 kegs, 16.25: twine, 4.20	279 30
Wickens, A. M: Trav exps inspec of boilers, 9.55: Water Works Dept Water, 800.00:	809 55
Wallace, W: Night services on boilers, 10.00: Warwick Bros & Rutter: Staty, Ptg, bdg, 84.37	94 37
Weir, J. J. A: Travelling expenses *re* inspection	10 00
Sundry persons: Accounts unenumerated under 10.00	83 75

INSTITUTION FOR THE DEAF AND DUMB—BELLEVILLE.

SALARIES ($23,614.59).

R. Mathison	Twelve months	salary as	Superintendent	1,800 00
P. D. Goldsmith, M.D.	do		Physician	600 00
W. Cochrane	do		Bursar	1,000 00
Isabel Walker	do		Matron and Housekeeper	500 00
D. R. Coleman	do		Teacher	1,200 00
Paul Denys	do		do	1,000 00
J. C. Balis	do		do	1,000 00
G. F. Stewart	do		do	1,000 00
W. J. Campbell	do		do	1,000 00
H. L. Ingram	do		do	600 00
Effie Terrill	do		do	650 00
Sarah Templeton	do		do	700 00
Ida M. Jack	Eight and ½	do	do Articulation	425 00
Thos. C. Forrester	Twelve	do	do	600 00
Mary Bull		do	do	350 00
Sylvia L. Balis		do	do	650 00
Georgina Linn		do	do	400 00
Ada James		do	do	300 00
C. H. Gibson		do	do Articulation	500 00
Lilian N. Metcalfe	Nine	do	Clerk and Stenographer	299 98
J. Ponton	Six	do	do	152 50
W. J. Austin	Four	do	do	120 00
M. J. Madden	Twelve	do	Teacher	300 00
Wm. Douglas	Six	do	Storekeeper and Associate Supervisor	349 99
Wm. Nurse		do	do	300 00
G. G. Keith	Twelve	do	Boys Supervisor	475 00
M. Dempsey		do	Seamstress and Girls Supervisor	300 00
S. A. McNinch	Three	do	Trained Nurse	60 00
Jno. Dowrie	Twelve	do	Carpenter	550 00

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

INSTITUTION FOR THE DEAF AND DUMB, BELLEVILLE.—*Continued.*

SALARIES.—*Continued.*

Wm. Langmuir	Twelve months'	salary as	Assistant Carpenter	$200 00
Wm. Nurse	Six	do	Shoemaker	274 98
Alex. Morrice	Two and ½	do	do	75 00
J. T. Burns	Ten	do	Printer	458 34
C. J. Peppin	Twelve	do	Engineer	600 00
D. Cunningham		do	Baker	425 00
Jno. Moore		do	Farmer and Gardener	400 00
Henry McIllhaw		do	Watchman	300 00
Peter Shane		do	Stoker	300 00
C. Benedict		do	Teamster	240 00
S. Rickett		do	Messenger	192 00
F. Benedict	Two	do	Extra Stoker	40 00
Cooks (2)	Twelve	do		303 00
Maids (8)		do		973 16
Laundresses (3)		do		369 25
Boys' and Girls' Nurses (2)		do		287 00
W. J. Clark	Two	do	Temporary Printer	81 07
Jessie Lytle	Nine and ½	do	Trained Nurse	240 32
Annie Mathison	Four and ½	do	Temporary Teacher	208 00
H. M. Gowsell	Four	do	Teacher Domestic Science	100 00
Chas. Lang	Twelve	do	Caretaker Sewage Works	365 00

EXPENSES ($21,769.41).

Anderson, J. W : Hardwood, 75¾ cords, 303.00 : Allison Edith : Serv. trained nurse, 58.28 361 28
Allen, S : Vinegar, 42 gals, 9.84 : barrel, 2.00 11 84
Am. Annals of Deaf : Subscription 50.40 : Black, W. & Son : Fish. 646 lbs, 64.70 115 10
Belleville Gas Co : Gas. 13.78 : repairs, castings, etc, 22.66 36 44
Belleville Canning Co . Beans, 42 doz. cans, 33.30 : peas, 60 doz. cans, 61.50 : jam, 252 lbs, 17.64 tomatoes, 20 doz, 18.00 : corn, 80 doz. cans, 80.00 : fruit, 64 doz. cans, 85.65 296 09
Brown, T. P : Window shades, 35, 36.25 : frames, 16.40 52 65
Burns, John T : Taking pupils home, 5.95 : Balis, S. L : Ret'ing pupils to institut'n, 9 50 15 45
Belleville Hospital . Services of nurse, 14.29 : Badgley. R : Hay, 5 tons 820 lbs, 48.69 62 98
Black, H. A : Work on farm, 54.00 : Badgley, W. H : Cartage, 14.25 68 25
Bell Telephone Co : Messages, 8.40 : Bursar : To pay sundries, 25 81 34 21
Cook, D. C. Pub. Co : Subscriptions, 28.77 : *Connecticut Magazine* : Books, 7.00 35 77
Creelman Bros. Co : Typewriters, 2, 140.00 .. typewriter supplies, 7.00 147 00
Caldwell, Jos : Dentistry, 25.00 : Cronk, H. W : Livery hire, 10.00 35 00
Coleman, D. R : Taking pupils home and returning them to the Institution 26 70
Campbell, W. J . do do 14 70
Chisholm, Chas. F : Honey, 600 lbs, 46.50 : Cameron, L. K : Stationery, 315.38 361 88
Geo. Collins: Hardwood. 43 cords @ 4.00, 170.00: 48 cords @ 4.50, 216.00 386 00
Copeland, Jas : Horse blankets, 2 pr. 9.15 : harness repairs, 38.90 48 05
Cochrane, W : Fares of indigent pupils, 61.35: Campbell, Sarah: Ser. trained nurse, 146.27 207 62
Can. Express Co : Charges, 25.80 : C. P. R. Tel. Co : Telegrams 10.66 36 46
Can. Mute : postage stamps, 18.80 : Carbon Studio : photo, 5.70 24 50
Denys, P : Taking pupils home, etc, 17.65 : Dempsey, M : Taking pupils home, 7.65.. 25 30
Dom. Express Co : Charges, 6 01 : Finnegan Carriage Co : Repairing vehicles, 82.39.. 88 40
Frost, John G : Hair, 118 lbs, 59.00 : chairs, 39, 21.45 : repairing mattrasses, 24.75 sundries, 7.15 112 35
Fleischmann & Co : Yeast, 162 lbs, 48.75 : Fairbairn, F. E : Cylinder oil, 56 gals, 40.85 89 60
Farley, J. J., M.D : Pro. services, 8.00 : Forrester, T. C : tak' pupils home, 4.20 12 20
Galbraith, Walmsley & Co : Sugar, 12824 lbs, 509.88 : layer raisins, 11 boxes, 32.50 : nuts, 65 lbs, 9.05 : tea, 63 lbs, 15.12 : sardines, 5 doz. cans, 10.80 : lye, 20 doz, 19.00 : soap, 46 doz, 20.70 : rice, 200 lbs, 7.50 : blacking, 6 doz. 5.40 : starch, 100 lbs, 6.00 : pepper, 30 lbs, 7.80 : mustard, 24 lbs, 10.08 : corn starch, 40 lbs, 3.00 : gelatine, 5 doz, 4.50 : sundries, 21.19 682 52
Graham, R. J : Apples, 15 bbls 45.00 : Graham, F : Services as stenographer 30 00.. 75 00
Guild, L. R : Maps, 7, 10.36 : Grafton, F. E. & Sons : Books, 22.40 32 76
Gibson. A. A : Postage stamps, 158.00 : post cards, 31.00 189 00
G. T. Railway Co : Freight charges, 8.42 : G. N. W. Tel. Co : Telegrams, 4.27 12 69
Hanley, J. C. & Co : Raisins, 532 lbs, 40.88 : currants, 422 lbs, 32.73: prunes, 300 lbs, 24.00 : evap. apples, 200 lbs, 19.00 : syrup, 7774 lbs, 306.15 : peaches, 225 lbs, 24.75 : bran, 2500 lbs, 27.50 : tea, 131 lbs, 41.20 : wheatlets, 1557 lbs, 62.28 : cranberries, 10.80 : bacon and ham, 242 lbs, 38.67 : figs, 260 lbs, 10.40 : lard, 160 lbs, 20.00 : ch. oats, 500 lbs, 7.00 : ch. barley, 500 lbs, 6.75 : sundries, 159.92 : salmon, 104 doz. cans, 152.40 : beans, 4⅔ bu, 6.52 : gluten meal, 500 lbs, 6.25 : sardines, 5½ doz. cans, 14.00 : cheese, 90 lbs, 11.25 : oats, 35 bu, 19.25 : syrup, 25 gals, 24.37 : nuts, 30 lbs, 5.40 : starch, 100 lbs, 6.00 : maple sugar, 150 lbs, 18.00 : haddie, 80 lbs, 6.00 : table raisins, 3 boxes, 8 25 : oranges, 4 cases, 17.75 : potatoes, 63 bags, 43.75 : wheat, 4 bu, 3.40 : pickles, 3 doz, 7.50 : soap. 16.50 1,198 62
Hurley, T : Potatoes, 44 bags, 28.74 : hay, 1875 lbs, 7.97 36 71
Holton, C. P : Shingles, posts, etc., 10.75 : Hanley, Thos : plastering, 8.00 18 75

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

INSTITUTION FOR THE DEAF AND DUMB, BELLEVILLE.—*Continued.*

EXPENSES.—*Continued.*

Haslip, T: Beef contract, 36187 lbs @ 5.94 cwt., 2,149.03: sausage, 576 lbs, 57.60: pickle pork, 865 lbs, 95.15: sundries, .72 ..... $2,302 50
Hart, P: Horseshoeing, 43.90: Hogan, W: Cartage, 6.00 ..... 49 90
Haseltine, Wm: Threshing grain, 23.18: Intelligence Ptg. Co: Sub. and Advt., 7.60 ..... 30 78
Industries Acct: Repg. boots and shoes, 130.33: boots and shoes, 19 pairs, 42.00: laces 249 pr, 11.20 ..... 183 53
Ingram, H. L: Travelling expenses, 60.00: James Ada, taking pupils home, 8.40 ..... 68 40
Jones, Nathan, Wool, 4 lbs, 6.00: towel linen, 111 yds, 13.88: thread, 30 doz, 13.50: duck, 30 yds, 4.80: yarn, 3 lbs, 4.50: sundries, 9.40 ..... 52 08
Keith, G. G: Taking pupils home, 4.75: Lally, M: Repg. implements, 5.65 ..... 10 40
Laidlaw & Ketcheson: Carpets, 24 yds, 26.73: napkins, 4 doz, 7.00. collars, 15.00: sundries, 8.18 ..... 56 91
Leavens, C. C: Coal contract, large egg, 440 tons 1680 lbs, at 5.48. 2,415.80: nut, egg and stove, 54 tons at 5.73, 309.42: 112 tons 330 lbs, Run of Mine, at 5.48, 614.66. 3,339 88
Lapan, Jos: Storing ice as per contract, 90.00: Lewis, J. G: Tile, etc, 16.93 ..... 106 93
Lang, Jos: Repg roofs, etc, 35.38: Lytle J: Returning pupils to institution, 9.75 ..... 45 13
Lister, Geo: Peaches, 13.75: grapes, 4.45: Mever Bros: Laundry supplies, 14.05 ..... 32 25
Moon, M: Painting, plastering, etc, 79.10: Morang, G. N. & Co: Books, 52.50 ..... 131 60
Mathison, R: Balce re table allowance, 321.26: allow re furniture and furnishings, 197.18: travelling expenses, 55.85 ..... 574 29
McGie, Wm: Plumbers' supplies, 75.48: repg. roofs, etc, 26.00: tinware, 50.59 ..... 162 07
McLaughlin, M. & Co: Flour contract, 265 bbls at 3.55 ..... 940 75
McGuen, John. Hay, 3 tons 830 lbs, 29.03: McCoy Bros: Livery hire, 14.00 ..... 43 03
Nelson, H. W. & Co: Brooms, 24 doz, 75.60: Nasmith Co: Lunches for pupils, 11.30 ..... 86 90
Nicholson, John: Stabling horses, 12.00 .. Nurse, Wm: Taking pupils home, 12.25 ..... 24 25
O'Brien, M: Services and expenses *re* examination of pupils 55 25
Paterson, The Wm., & Son Co: Candy, 223 lbs, 15.61: peanuts, 110 lbs, 13.20: pop corn, 10 gro, 10.00: bread, biscuit, tarts, etc, 187.44 ..... 226 25
Pringle, A. N: Lumber, 39.99: Parks, J. T: Cutting and binding grain, 23.00 ..... 62 99
Quick & Robertson: Ties, 4 doz, 6.00: Rathbun Co: Lumber, shingles, etc, 94.27 ..... 100 27
Ritchie Co: Pique, 30 yds, 4.50: sundries, 4.38: carpet, 27 yds, 37.53: table linen, 43 yds, 19.46: towelling, 652 yds, 91.66: bath towels, 2⅛ doz, 6.76: cotton, 117 yds, 9.95: sheeting, 503 yds, 236 15 ..... 410 39
Riordon Paper Mills: Paper. 7.98: Rolph, Smith Co. Stamping, 6 25 ..... 14 23
Richards, D: Laundry soap, 4,000 lbs, 159.25: Robertson, The Jas. Co: Closets, 2, 22.35 .. 181 60
Ray, Alex: Drugs and chemicals, 41.25: Robinson, A: Subscriptions, 8.00 ..... 49.25
Sprague, Jno: Bal'ce 1901 butter contract, 631 lbs at 22c, 138 82: 1902 butter contract, 7,291 lbs at 22½c, 1,640.49: eggs, 1,709 doz, 271.49: turkey, 738 lbs, 81.18: ducks, 54 lbs. 5.94: apples, 5.25: syrup, 3½ gals, 3.85 ..... 2,147 02
Stroud Bros: China ware, etc, 22.87: cups and saucers, 20 doz, 16.00: scollops, 6 doz, 21.00: churns, 6, 7.20: dinner set, 30.00: clothes hampers, 5, 10.00: tin plates, 20 doz, 14.00 ..... 121 07
Stocker, S: Sand, 7 loads, 8.75: Sulman, C. N: Amusements, 15.00 ..... 23 75
Sinclair, D. V. & Co: Hose, 24 pr, 8.80: dress goods, 21½ yds, 10.75: elastic, 84 yds, 6.60: percoline, 52 yds, 7.80 cotton, 25 yds, 2.50: pique, 11 yds, 2.20: cotton thread, 20 doz, 9.00: sundries, 9 12 ..... 56 77
Stewart, G. F: Taking pupils home, etc, 24.30: Steinberger, Hendry Co, teacher's book, 25.00 ..... 49 30
Sills, S. G: Milk, 15,876 qts, 528.81: Simmers, J. A: Seeds, etc, 32 45 ..... 561 26
Scantlebury, C. B: Stationery, etc, 14.26: slates, 6 cases, 54.60: slate pencils, 24 boxes, 4.80: moulding, 150 ft, 7.50: wall paper, 35.67: school supplies, 66.64: books, 46.37: Xmas globes, 13.50 ..... 243 34
Sanford, B: Cleaning chimneys, etc 12 00
Sine, A. O: Blacksmithing and horseshoeing 56 10
Sundry Newspapers: Advertising, 19.70: advt'g *re* supplies, 63.00. *re* fuel, 120.50 .... 203 20
Thomas, Geo. R: Bal'ce 1901 meat contract, 3,329 lbs at 5.75 cwt, 191.41: poultry, 6.80 .... 198 21
Templeton, R. & Co: Drugs and chemicals 307 40
Trenton Electric & Water Co: Light 1,437 64
Trenton Fruit Co: Berries, 333 boxes 26 64
Vermilyea, C. H: Hose, 18 pr, 3.75: caps, 3.25: clothing, 33.50 ..... 40 50
Vermilyea, A. G: Coffee, 460 lbs, 151.80: groceries, 49.67: gelatine, 5 doz, 7.25: soap, 40 boxes, 160.00: baking powder, 100 lbs, 48.33: blueing, 24 lbs, 4.80: cheese, 165 lbs, 17.74: tea, 250 lbs, 61.80: bacon and ham, 18 lbs, 2.88: potatoes, 19 bags, 12.31: fruit, berries, etc, 69 91: poultry, 8.68 ..... 595 17
Walker, J. W: Hardware sundries, 143.47: locks, 4 doz, 6.00: fire brick, 6.00: fire clay, 1 bbl, 3 50: castings, 40.90: paints and oils, 11.00: packing, 19 lbs, 7.60: sheet iron, 192 lbs, 6.50: spoons, 16 doz, 18.50; turpentine, 5 gals, 4.00: floor dressing, 8 tins, 8.80: glass, 38.50 ..... 294 77
Walker Foundry: Castings, repairs, etc 57 13
Walker, I. M: Taking pupils home, etc 12 75
Watson, W. W: Bread, 267 loaves 24 03
Wickens, A. M: Trav. expenses, inspection of boilers 13 05
Waterworks Dept: Water 900 00
Sundry persons: Accounts unenumerated under 10.00 ..... 94 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

INSTITUTION FOR THE BLIND, BRANTFORD.

(Salaries, $17,060.29).

A. H. Dymond	Twelve	months' salary as	Principal	$1,800 00
W. N. Hossie		do	Bursar	1,100 00
J. A. Marquis, M.D.		do	Physician	500 00
A. M. Rice		do	Matron	409 17
M. E. Walsh		do	Teacher	500 00
C. Gillen		do	do	500 00
E. Moore		do	do	500 00
W. Messmore		do	do	400 00
E. A. Harrington		do	do	360 00
E. Loveys		do	do	300 00
L. H. Haycock		do	do	300 00
K. Burke	Nine	do	do	125 00
L. Stedman	One	do	do	10 00
Walter Wickens	Twelve	do	do	1,000 00
P. J. Padden	Nine	do	do	375 00
E. A. Humphries		do	do	600 00
J. A. Hayter		do	do	600 00
Thos. Truss		do	Trades Instructor	1,100 00
M. J. Cronk	Nine	do	Visitors' Attendant	125 00
P. J. Roney	Three	do	Teacher	100 00
J. Kirk	Twelve	do	Nurse	260 00
M. Stewart		do	do	240 00
G. G. Lambden		do	Carpenter	424 00
Thos. Harrison		do	Engineer	600 00
J. B. Wilson		do	Assistant Engineer	450 00
A. L. McIntyre		do	Fireman	360 00
D. Willits		do	Gardener	484 00
P. Berney		do	Teamster and Farm Hand	336 00
E. H. Northmore	Five	do	Porter and Messenger	91 80
W. McLean	Six and one-half	do	do	120 45
Cooks (2)	Twelve	do		298 07
Maids (12)		do		983 92
Laundresses (4)		do		466 13
Jno. Harrington		do	Night Watchman	375 00
John Daly		do	Temporary	313 00
Chas. Lewis	Five	do	do	153 75
G. Grierson	Twelve	do	Baker	400 00

Expenses ($15,152.12).

Am. Printing House for the Blind, Books, 201.43: cards, 4.00	205 43
Am. Bible Society: Books, 7.20: Am. Express Co'y: Charges, 20.16	27 36
Alexander Engraving Co., Half tone groups	14 00
Anglo Can. Music Pub. Ass'n, Sheet music, 16 04: Agnew, Jno., Boots & shoes, 32 95: cases, 5 10	54 09
Andrews W. N., Admissions to concerts, 30 75: Best, T. F., Admissions to concert, 10 80	41 55
Brantford St. Ry. Co., Car tickets, 58 00: Brantford Water Works, Water, 283 08	341 08
Brantford Electric and Operating Co., Light, 648 50: power, 100 00: repairs, 3 50	752 00
Brantford Gas Co., Gas, 230 72: Brantford Methodist Church, Sittings for 30 pupils, 60 00	290 72
Bishop, Jno. & Son, Iron, hardware, etc., 51 77: belting, 42 ft., 7 80: paints and oils, 49 98: brushes, 4 90: twine, 38 lbs., 9 44: packing, 21 lbs., 7 28: lead, 100 lbs., 7 00: lap rugs, 4, 6 30	144 47
Ballantyne, A., Iron, hardware, etc., 49 69: nails, 2 kegs, 5 90: twine, 6 balls, 3 15: white lead, 50 lbs., 3 50: paint, 3 75: shellac, 10 lbs., 5 00: glass, 9 45: locks, ½ doz., 4 50	84 94
Broomfield, G. W., Solder, 10 lbs., 3 00: lead, 60 lbs., 6 00: repairs, 7 50	16 50
Beney & Hardwick, Eggs, 360 doz., 71 64: Burroughs, Jno. T., Teaming coal, 11 00	82 64
Bloxham, J. C., Balance 1901 beef contract, 695 lbs. @ 6¼c., 43 44: poultry, 1 60: veal, 2 80.	47 84
Brantford Coal Co., Coal contract, Stove and egg, 261 tons 397 lbs, @ 6 00	1,567 26
Babcock, W. F., Rep'g mats and pillows, 29 00: Buck, Wm., Stove Co., Registers, 2, 6 00.	35 00
Brown, A. E., Tea, 292 lbs., 76 75: coffee, 330 lbs., 82 50: sundries, 7 67	166 92
Bell, B. C., M.D., Annual examination of pupils, etc	69 00
Burns, R. C., Sheeting, 250 yds., 57 50: pillow cotton, 100 yds., 9 00: yarn, 3 lbs., 4 20: towelling, 30 yds., 3 00: sundry clothing, 10 94	84 64
Boughner, H., Postage stamps and cards, 177 25: Bursar, To pay sundries, 69 62	246 87
Cockshutt Plow Co., Rep'g roller, 7 67: Coles Shoe Co., Boots and shoes, 27 05	34 72
Cobb, J. B., subscriptions, magazines, etc	14 00
Carbon Studio, photo	5 55
Colonial Typewriter Co., Typewriters, 2, 150 25: ribbons, 2 doz., 18 00	168 25
Cox, T. A., Hay, 3 tons, 27 00: setting eggs, 3 00	30 00
Cowan, T. A. & Co., Plumbers' supplies, castings, etc., 77 48: closets, 24 50: iron pipe, 110 feet, 8 80: hose, 100 ft., 14 00: sinks, 18 00: labor, 13 70	156 48

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

INSTITUTION FOR THE BLIND, BRANTFORD.—*Continued.*

EXPENSES.—*Continued.*

Cutmore, Wm., Soap, 18 40: rice, 100 lbs., 5 75: corn starch, 40 lbs., 2 80 ..... $ 26 95
Crompton, E. B. & Co., Furnishings, 25 32: towelling, 188 yds., 31 27: quilts, 60, 79 80: bath towelling, 37 yds., 9 25: spools, 13 doz., 6 24 ..... 151 88
Chave, R. C., Paper hanging, etc., 27 22: Can. Express Co., charges, 4 45 ..... 31 67
Cunningham, Fred, Eggs, 240 doz., 36 58: beef, mutton, etc., 523 57 ..... 560 15
Charlton, E. M., Eggs, 65 doz., 9 85: berries, 50c.: Charlton, T. W., Eggs, 82 doz., 11 35. 21 70
Collector of Customs, Duty charges, 11 70: duty on coal, 39 01 ..... 50 71
Devlin, R., Gelatine, 1 doz., 1 50: jam, 9 pails, 5 55: bacon and ham, 51 lbs., 8 56: biscuits, 3 87: salmon, 2 doz. cans, 3 18: cheese, 44 lbs., 6 11: sugar, 611 lbs., 24 44: currants, 30 lbs., 2 70: lard, 40 lbs., 5 00: raisins, 28 lbs., 2 24: soap, 11 20: prunes, 55 lbs., 4 37: corn starch, 40 lbs., 2 60: figs, 31 lbs., 1 55: sundries, 11 07. 93 94
Duncan, Chas., Carpet, making and fitting, 54 31: Dyckman, J. M. & Co., Cartage, 46 37 100 68
Dillon, W. G., Harness repairs, 11 15: Daniels, A. W., Harness repairs, 22 90 ..... 34 05
Dymond, A. H., Balance *re* table allowance, 148 95: allowance *re* furniture and furnishings, 90 48: prizes, 5 00: expenses *re* reception to British press, 18 10: trav. expenses, 59 40 ..... 321 90
E-tate Geo. Caudwell, Wool, 6½ lbs., 4 16: sundries, 5 78 ..... 9 94
Fowler, C. B., Fruit, 81 90: poultry, 116 25: fish, 32 95: sundries, 9 40: syrup, 5 gals., 5 00: sugar, 2,154 lbs., 83 81: tea, 120 lbs., 42 00 ..... 371 31
Fysh, W. M., Kalsomining, etc., 44 76: Forde, J. & Co., Yeast, 21 lbs., 6 45 ..... 51 21
First Baptist Church, sittings for 4 pupils, 8 00: File, L., Cutting grain, 13 00 ..... 21 00
Fyle, J. J., V.S., Professional services, 19 25: Foster, Jas., Dials, 7 50 ..... 26 75
Gillen, C., Taking pupils home and returning them to Institution 11 40
Grace Anglican Church, Sittings for 24 pupils, 48 00: Gibson-Whitaker Co., Bread, 22 19. 70 19
G. T. Railway Co., Freight charges, 18 07: freight on coal, 72 03 ..... 90 10
G. N. W. Tel. Co., Telegrams, 6 09: Hay, J. B., Seeds, etc., 25 24 ..... 31 33
Hartley, R. & F., Jam, 58 lbs., 3 96: sundries, 50 12: pork, 60 lbs., 5 10: lard, 40 lbs., 5 00: prunes, 50 lbs., 3 50: tapioca, 100 lbs., 5 00: soap, 8 45. pepper, 10, 2 40: biscuits, 2 93: sugar, 611 lbs., 25 97: brooms, 1 doz., 3 50 ..... 115 93
Hunt & Colter, Livery hire, 30 00: cartage, 13 50 ..... 43 50
Hammacher, Schlemmer & Co., Rep'g pianos, 35 40: Hurley & Watkins, printing, 80 50. 115 90
Heintzman & Co., Rep'g pianos, 16 80: Haynes, F. W., Barbering, 50 00 ..... 66 80
Hendry, H. J., Milk, 277 qts., 13 85: Hurley, J., Horseshoeing, 22 75 ..... 36 60
Hearns, F. P., Horseshoeing, 12 25: Hughes, E. A., Admissions to concert, 7 20..... 19 45
Hunt Bros., Flour contract, 114 bbls. @ 3 57, 406 99: corn flour, 4 00 ..... 410 99
Heinrich, F., Admissions to concert, 9 25: Handsfield, Thos. A., Threshing grain, 8 50. 17 75
Haycock, L. H., Trav. expenses, 70 75: Humphries, E. A., Trav. expenses, 27 15 .... 97 90
Hayter, J. A., Travelling expenses 7 40
Hossie, W. N., To pay fares of guides and indigent pupils, 92 45: trav. exp., 14 00..... 106 45
Institution Work Shop, Baskets, stockings, etc., 14 60.. Ireland, R., Hay, 1 ton, 9 00... 23 60
John H. Stratford Hospital, services of nurse 38 00
James & Deeming, Lard, 40 lbs., 5 10: starch, 40 lbs, 2 50: soap, 11 20: biscuits, 7 35: ham and bacon, 50 lbs., 8 50: cheese, 14 lbs., 1 96: raisins, 10 lbs., 1 40: sugar 50 lbs., 2 75: mustard, 6 lbs., 2 70: marmalade, 1 doz., 2 00: vinegar, 42 gals., 11 92: sundries, 19 34 ..... 76 72
Kay, Mrs. C., Board of child, 21 00 Luck, F., Potatoes, 37 bags, 22 00 ..... 43 00
Long, M. E., Mirrors, 5 15: mattrass, 10 00: window shades, 4, 2 00..... 17 15
Moore, Henry, Cheese, 80 lbs, 10 66: jam, 9 pails, 4 95: sugar, 1,522 lbs., 66 48: soap, 32 60: biscuits, 8 08: prunes, 57 lbs, 4 13: apricots, 10 lbs, 1 60: bacon, 62 lbs., 11 27: currants, 60 lbs., 4 70: lard, 120 lbs., 16 80: matches, 2 25: brooms, 2 doz., 6 75: beans, 3 20: sauce, 1 doz., 3 90: eggs, 68 doz., 16 20: raisins, 58 lbs., 6 41: sundries, 34 33... ..... 234 31
Mann Jno. & Sons, Soft lump coal 79 tons, 300 lbs. @ 7.75, 613.42: 1 ton, 70 lbs. @ 4.50, 4.67 618 09
Mills & Doyle, Dentistry, 9 00: Merrill, F. W., Drugs and chemicals, 12 50 ..... 21 50
Malcolm, Jno & Son, Butter contract, 4,246 lbs. @ 22c..... 909 26
Mallagh, W. J. F., Stationery, 22 10: Mason, J. T., Books, 7 65 ..... 29 75
Mintern, M., Pork, 29 90: veal and lamb, 7 70..... 37 60
Massey-Harris Co., Rep'g implements, 17 45 Messmore, W., Trav. expenses, 12 63 .... 30 08
McLean, Ogilvie & Lochead, Pillow cotton, 65 yds., 11.15: dress goods, 36 yards, 12.86; oil cloth, 44 yds., 14.28: sundries, 26.64: towelling, 85 yds., 18.40: sheeting, 27 yds., 6.75 90 18
McColl Bros. & Co., Powder ammonia, 100 lbs., 8.50 linseed oil, 9.00 ..... 17 50
McQueen, Jas., Admissions to concert, 10.00: Ontario Rubber Co., sheet rubber, 9 lbs., 9.25 19 25
Paterson, E., Poultry, 1.30: cheese, 40 lbs. 5.18: tea, 45 lbs., 11.25: biscuits, 5.94: bacon, 42 lbs., 6.78: sugar, 647 lbs., 28.85 starch, 82 lbs., 5.73: lard, 40 lbs., 5.10: raisins, 28 lbs., 3.50: prunes, 53 lbs., 3.86: soap, 13.50 chow-chow, 2 doz., 4.80: sardines, 2 doz., 5.00: sundries, 23.65: syrup, 5 gals., 5.00.... 132 44
Pugsley, Dingman & Co., Soap, 2,541 lbs., 117.81: Perkins Inst. for Blind, books, 78.00.... 195 81
Parks & Co., Subscriptions, 35.25: stationery, 4.50: photos and frames, 39.40..... 79 15
Padden, P. J., Travelling expenses, etc., 96.20: amusements, 3.35..... 99 55
Quinlan, A., Filling ice house, 95.00: sawdust, 7.00..... 102 00
Rochester & Pittsburg Coal Co., Soft lump, 73 tons 1,200 lbs. at 6.50, 478 40: Run of Mine, 29 tons 600 lbs. @ 4 50, 131 85..... 610 25

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

INSTITUTION FOR THE BLIND, BRANTFORD.—*Continued*

EXPENSES.—*Continued.*

Rogers, Elias, Co., Soft lump coal, 26 tons 1,800 lbs, @ 6 25	$168 13
Ryerson, T. E. & Co., Turkeys, 137 lbs., 16.84: cranberries, 6 bu., 22.40: berries, 35.61; sundries, 26.02	100 87
Ryan, P., Receipt books, 6.50: Robertson, M. H., drugs and chemicals, 31.76	38 26
Reeder, M. M. & Son, Beef and mutton, 7,473 lbs	536 40
Ripley, E. G., Potatoes, 30 bags	18 00
Smith, C. W., Kalsomining, 63.00: Selby & Co., school supplies, 19.77	82 77
Sager, D. S. & Co., Drugs and chemicals, 39.25: Spence, A. & Sons, repairing vehicles, 21.85	61 10
St. Andrew's Presbyterian Church, Sittings for 25 pupils	50 00
St. Basil's Roman Catholic Church, Sittings for 17 pupils	34 00
Sundry Newspapers, advertising *re* supplies, 63.00: *re* fuel, 120.50	183 50
Sutherland, J. & J., Stationery, printing, etc., 238.85: toilet paper, 63.80: wall paper, etc., 25.20: blank books, 10.00: print paper, 1,320 lbs., 105 60	443 45
Secord, D., Drugs and chemicals, 43.33. Sunday School Times Co., Copies of leaflets, 6.00	49 33
Schultz Bros. Co., Lumber, slate, repairs, etc., 140.08: table tops, 20.80	160 88
Simmons, S., Seeds, 10.88: oats, 55 bu., 21.75: ch. feed, 1 ton, 26.00: bran, 500 lbs., 4.75	63 88
Smith, A. E., Repg. shoes, 12.40 Stuffer, H., Meat, 120 lbs., 7.50	19 90
Stewart, J. G., V.S., Professional services and medicines	12 00
Sayles & Carson, Fish, 1624 lbs	162 07
Street Bros., Cutting feed, 8.00: Smith; Mrs. J. W., Board of child, 21.00	29 00
Smith & Andrews, Admissions to concerts, 8.40: Toronto College of Music, Exams., 38.35	46 75
Truss, P. G., Cheese, 34 lbs., 4.44: bacon, 49 lbs., 8.52: biscuits, 4.30: currants, 40 lbs., 3.20; lard, 80 lbs., 10.00: salt, 1 bbl., 1.25: coal oil, 5 gals., 1.15: jam, 9 pails, 5.40; syrup, 2 gals, 1.20: brooms, 1 doz., 3.50: raisins, 33 lbs., 4.62: rice, 250 lbs., 15.00: figs, 34 lbs, 1.53: sugar, 826 lbs., 34.55: soap, 13.00: starch, 40 lbs., 2.60: prunes, 52 lbs., 4.25: peaches, 4.00: sundries, 16.14	138 65
Tapscott, S. & Co., Alcohol, 10 gals., 22.50: shellac, 25 lbs., 11.50	34 00
Turnbull, Howard & Co., Iron, tinware, etc., 70.05: labor, 22.25: fire bricks, 130 lbs., 13.00: repairs to range, 48.45: pans, 4, 5.00	158 75
Union Pub. Co., Directories, 9.00: Vanderlip, J. W., Hay, 4,925 lbs., 18.48	27 48
Vanstone, A. L., China, glassware, etc., 20.55: salt, 1.10: sardines, 1 doz., 2.80: wheat, 3.30; lard, 5.38: salmon, 5 doz., 7.40: gelatine, 1 doz., 1.50: sundries, 19.22; raisins, 20 lbs., 2.70: eggs, 21 doz., 3.52: blueing, 12 lbs., 2.40: bacon, 45 lbs., 8.16	78 03
Winter, G. S., Son & Co., Bacon, 68 lbs., 11.71: biscuits, 9.99: cheese, 68 lbs., 8.56; raisins, 70 lbs, 8.03: jam, 5 pails, 3.00: salt, 1 bbl., 1.20: currants, 130 lbs., 9.95; figs, 33 lbs., 1.32: syrup, 4 gals., 2.40. cranberries, 3.42: sugar, 1,011 lbs., 44.47: soap, 9.00: rice, 250 lbs., 15.00: lard, 130 lbs., 16.35: pumpkins, 3 cases, 4.50: marmalade, 2 doz., 4.00: dried apples, 50 lbs., 4.50. salmon, 4 doz. cans, 5.60; eggs, 37 dozen, 7.55: starch, 88 lbs., 6.66: sundries, 43.13	220 34
Waterbury Brass Co., Brass, 12.08: Wickens, A. M., trav. exp. re insp. of boilers, 27.45	39 53
Wallace, J. T., Fruit jars, 6 doz, 4.20: bacon and ham, 61½ lbs., 10.28: sundries, 18.09: tapioca, 144 lbs., 7.92: starch, 39 lbs., 2.73: pepper, 10 lbs., 2.30. lard, 40 lbs., 5.00: raisins, 30 lbs, 3 75: biscuits, 2.41: sugar, 339 lbs, 11.70. salt, 2 bbls., 2.50	70 88
Wenger, Aaron, Balance 1901. butter contract, 90 lbs. at 22c	19 80
Whitlock, R. T. & Co., Clothing, 78.85: Wier, G. H., Potatoes, 35 bags, 21.20	100 05
Wood Bros., Bran, 5 tons, 91.50: chop feed, 7¼ tons, 203.10. ch. oats, 1000 lbs, 14.50: rolled oats, 24 sacks, 58.15: oats, 120 bu., 57.30: sundries, 3.90: seeds, 11.30	439 75
Weir, Jno., Potatoes, 25 bags, 15.25: Wallace, J. A., drugs and chemicals, 21.95	37 20
Wickens, W. B., Taking pupils home, 93.45: Wadsworth, J. J., Exam. literary classes 57.95	151 40
Sundry persons, Accounts unenumerated under 10.00	154 44

ANDREW MERCER REFORMATORY FOR FEMALES.

SALARIES ($10,932.04).

Emma O'Sullivan	Twelve months' salary as	Superintendent	999 96
L. M. Coad	do	Assistant Superintendent	600 00
Matilda Elliott	do	Principal Girls' Refuge	750 00
Margaret Down	do	Housekeeper	199 92
P. Backus	do	Chief Attendant	199 92
Attendants (3)	do		516 00
Teachers in Refuge (7)	do		2,100 00
Rose Harrison	do	Night Attendant	199 92
Mary E. Madden	do	Cook	168 00
H. Farmer	do	Door Attendant	168 00
Jno. S. King, M.D.	do	Physician	799 92
R. W. Laird	do	Bursar and Storekeeper	1,099 92
Jas. Rankin	Nine do	Engineer	450 00
Jas. Kelly	Three do	do	155 56
Jno. Lang	Three do	Assistant Engineer	124 98

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ANDREW MERCER REFORMATORY FOR FEMALES.—*Continued.*

SALARIES.—*Continued.*

Jas. Kelly	Nine months'	salary as	Assistant Engineer	$374 94
Peter Chambers	Twelve	do	Night Watchman	549 96
Robert Wheeler		do	Messenger	425 04
J. F. Barron		do	Gardener	450 00
W. A. Hill		do	Carpenter and Mason	600 00

EXPENSES ($19,476.30).

Aikenhead Hardware: Iron, hardware, etc, 65.09: sad irons, 30.00: table spoons, knives and forks, 10 doz, 14.20: latches and locks, 6.50: tea spoons, 18, 4.25: wire nails, 5 kegs, 17.05: sash cord, 10 lbs, 3.20 140 29
Allan, J. W: Glass, 9.40: hardware sundries, 18.97 28 37
Allan, A. A. & Co: Hats and caps, 15.00: Allen, S: Vinegar, 42 gals, 11.83 26 83
Ashdown, Jno: Baskets 12 00
Brown, Alex. & Co: Balance 1901 Flour contract, 67 bbls at 3.30 221 10
Baird, Norman: Ploughing, 22.75: fertilizer, 35.50 58 25
Brock, W. R. & Co: Lining, 214 yds, 17.98: curtains, 1 pr, 2.14: gingham, 96 yds, 10.40: drapery, 37 yds, 5.06: needles, 3 00: flannelette, 60 yds, 3.63: pins, 3.54: vests, 19.24: print, 162 yds, 14.16: dress goods, 197 yds, 36.95: denim, 913 yds, 151.19: cotton, 1,157 yds, 102.67: sheeting, 856 yds, 91.44: mangle cloth, 39 yds, 17.55: cheese cloth, 216 yds, 8.18: hessian, 306 yds, 43.25: towelling, 40 yds, 5.00: shirting, 286 yds, 32.55 sundries, 49.69: crash, 115 yds, 10.62: quilts, 19, 22.14: apron linen, 47 yds, 8.89: dimity, 30 yds, 5.39: thread, 7 gro, 35.91: shawls, 1 doz, 16 25: warp, 18 bdles, 14.40: rugs, 8.86 740 08
Bertram Engine Works Co: Boiler tubes and rep's, 43.12: Bowes, A: Hay, 3,100 lbs, 17.05 60 17
Brown, P. H: Oats, 193 bus, 91.19: ground corn, 3,250 lbs, 44.83: bran, 4,322 lbs, 40.99: ch. oats, 5,500 lbs, 83.01: corn meal, 1,500 lbs 21.35 281 37
Belle Ewart Ice Co: Ice, 174.06: Brown Bros: Stationery, 45.50 219 56
Bird, J. A. & W. Co: White magnite, 100 lbs 7 00
Bentley, L., M. D: Examination of inmates 12 00
Bursar: Car tickets, 39.75: to pay sundries, 108.67 148 42
Bolger, K: Services temporary attendant, 63.00: Clark, A. H: Fertilizer, 6.25 69 25
Central Prison Industries: Uniform suits, 13, 221.00: horseshoeing, 27.81: blankets, 30 pr, 77.40: repairs, 35.30: shirting, 41 yds, 24.60: sundries, 22.43: clothing, 38.00: yarn, 161 lbs, 56.44: beds, 18.00: boots and shoes, 165.20 686 18
City Dairy Co: Milk, 237.97: Consumers Gas Co: Gas, 921.42 1,159 39
Coleman, C. W. Repairing clocks, 2.00: clocks, 4.75 6 75
Cameron, L. K: Stationery, 90.36: Cobban Mfg. Co: Picture moulding, etc, 20.93 111 29
Crawford, Jas: Balance 1901 potato contract, 82½ bus. at 35c 28 88
Coulter's Cartage Agency: Cartage, 14.84: Carbon Studio Photo, 5.00 19 84
Collins, M: Services temporary attendant, 21.65: Cullen, T: Wages as gardener, 258.00 279 65
Doyle, The M. Co: Fish, 105.33: Dom. Laundry Soap Co: Laundry soap, 2,557 lbs, 127.85 233 18
Dunn, J. R: Straw 7,420 lbs, 43.30: hay, 6,290 lbs, 46.46 89 76
Duncan, Jno: Incandescent lamps, 21, 15.75. mirror, shades, glasses, etc, 7.50 23 25
Eby, Blain Co: Sugar, 612 lbs, 27.42: syrup, 2,673 lbs, 80.19: starch, 397 lbs, 21.62: rice, 550 lbs, 20.63: peas, 4 bags, 10.00: salt, 11 bbls, 16.15: matches, 2 cases, 6.10: mustard, 24 lbs, 5.88: figs, 63 lbs, 2.30: sal soda, 1,875 lbs, 18.75: prunes, 100 lbs, 7.25: pot barley, 3 bags, 8.00: salmon, 4 doz cans, 6.40: blueing, 60 lbs, 10.80: sundries, 8.82 250 31
East India Tea & Coffee Co: Coffee, 162½ lbs, 32.50: Eaton, The T. Co: Can. Ensign, 14.75 47 25
Elliott, M: Expenses attending conference, 37.30: to pay sundry items, 13.15 50 45
Egan, F: Services as stableman, 360.00: Elliott, Jennie: Services as teacher, 50 00 410 00
Fleischmann & Co: Yeast, 100 lbs, 30.37: Flint, T. R. & Co: Magnite paint, 200 lbs, 17.27 47 64
Forsyth, Wm: Hay, 2,480 lbs, 14.91: Gowans, Kent Co: China, glassware, etc, 79.01 93 92
Graham, A: Balance 1901 rolled oats contract, 5 bbls at 3.40, 17.00: 1902 contract, 17 bbls at 5.75, 97.75 114 75
Gore, G. W: Repairing boilers, 55.45: Gaby, Jos: Painting, 17.00 72 45
Gillett, E. W: Yeast, 9.90: Globe Ptg. Co: Subscriptions, 10.00 19 90
Gurney Foundry Co: Oven grates, 7.50: gas ranges, 2, 32.00: kettles, pans, etc, 18.14: repairs, 10.92: repairing laundry heater, 29.40. 97 96
Goodfellow, J: Livery hire, 7.75: Hobbs Hardware Co: Disinfectant, 45 gals, 61.43 69 18
Hunter, R Purchase of meat, 1,371.02: Harris, Chas: Milk, 318 gals, 54.17 1,425 19
Hamilton, W. B. Shoe Co: Boots and Shoes, 353 prs, 314.70: laces, 2 gro, 4.63 319 33
Hill, W. A: Extra services as carpenter 43 08
Institution for Deaf and Dumb: Slippers, 40 pr, 28.00: boots and shoes, 82 prs, 83.00 111 00
Johnson, D: Repairing locks and keys, etc, 46.44: Kay, Jno. Son & Co: Carpet, 6 yds, 6.75 53 19
King, W. J. Postage stamps, 72.00 Kelly, Jas: Allowance in lieu of meals, 45.00 117 00
Kehoe, Annie: Services temporary teacher 6 75
Leavens, I. M: Services temporary attendant 8 55
Long & Bro. Co: Raisins, 112 lbs, 10.64: currants, 72 lbs, 3.78: sundries, 13.95 28 37
Lugsdin, Geo. & Co: Harness supplies, 15.50: horse blanket, 4.50 20 00
Miller, H. & Co.: Drugs and chemicals, 4.75: Mail Printing Co., subscription, 8.00 12 75
Mick, M: Services, temporary attendant, 150.00: Musselman, J., services as gardener 237.00 387 00

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

ANDREW MERCER REFORMATORY FOR FEMALES.—*Continued.*

EXPENSES.—*Continued.*

Mashinter, B: Hay, 2130 lbs, 11.75: Martin G. & Son. livery hire, 7.00	$ 18 75
Meyer Bros: Rep'g laundry machinery, 71.48: laundry starch, 321 lbs, 28.89: sundries, 4.13	104 50
Mather, O: Hay, 2580 lbs, 16.77: McKenzie, A., hononarium for services, 50.00	66 77
Macdonald, John & Co: Print, 1149 yds, 114.95: sundries, 40.33: canvas, 125 yds, 17.50: collars, 14 doz, 11.07 : pillow cotton, 44 yds, 5.31 : cotton, 775 yds, 57.54: tabling, 29 yds, 10.88: linen, 50 yds, 7.50: spools, 28.35: rug, 3.50: sheeting, 130 yds, 23.17: butter cloth, 120 yds, 4.80: lining, 104 yds, 13.75: pins, 6 00: towelling, 217 yds, 32.25: ladies' collars, 4.50	381 40
McKay, A. F: Services as messenger, 18.00: Macpherson, A: Auer lights, 8, 6.25	24 25
McKinnon, Jessie C: Services as teacher, 50.00: Mackay, E. C: Services as teacher, 100.00	150 00
McKinnon, S. F. & Co: Mantles, 8, 36.00: hats, 6.65	42 65
McIntosh, P. & Son: Potato contract, 443 bushels at 65c	287 98
McLaughlin, M. & Co: Flour contract. 235 bbls. at 3 32½	781 38
Nelson, H. W. & Co: Scrub brushes, 17 doz, 31.00: hampers, 6, 19.50: combs, 6½ gro, 36.33: pails, 17.15: woodenware sundries, 27.61. brooms, 13 dozen, 35.55: ceiling brooms 2 doz, 4.00	171 14
Nichol, W. J. & Co: Tea, 327 lbs, 62.13: Oldschwager, F: Uniform fur caps, 3, 15 00	77 13
O'Sullivan, E: Car tickets, 4.00: to pay sundries, 2.52: bal'ce re table allow'ce, 402.63: allow'ce re furniture and furnishings, 91.63: exp. re visit to several institutions, 124.05	624 83
O'Brien, J. F: New valves for lavatory, 60.00: Park & Thompson, sausage, 13.29	73 29
Pfeiffer & Hough Bros: Cleaning carpets, 31.75: Pike, The D. Co. awnings, 8, 25.00	56 75
Prisoners' Aid Ass'n: Cab hire re religious services	250 00
Pike, E. S: Services as teacher, 25.00: Quinn, M. J: car tickets, 6.75	31 75
Robertson, The James Co: White lead, 100 lbs, 6.00: boiled oil, 5 gals, 4.25: turpentine, 5 gals, 3.40: castings, &c, 60 41	74 06
Rennie, Wm: Seeds and bulbs, 79.57: Rosebrugh, A. M., M. D., medical attendance 10.00	89 57
Ryan, The Wm. Co: Balance 1901 butter contract, 1697 lbs., at 19c, 322.43: bacon and hams, 1099 lbs, 153.60: lard, 202 lbs, 25.33: fish, 3.58: turkeys, 100 lbs, 9.98: potatoes, 10 bags, 9.50: geese, 73 lbs, 7.17: syrup, 7.30: herring, 3 half-bbls, 10.50: evap. apples, 100 lbs, 10.50: eggs, 90 doz, 13.20: beans, 5½ bu., 7.08: sundries, 1.05	581 22
Rogers, Elias Co: Bal'ce 1901 coal contract, stove, 29 tons, 1570 lbs, at 5.19, 154 56: soft sc'gs, 9 tons, at 2.54, 22.86: pine, 4 cords, 21.25: sundries, 15 69: 1902 coal contract — stove and nut, 53 tons, 870 lbs, at 5.65, 301.80: soft, 560 tons, 1435 lbs, at 3.58, 2,007.32	2,523 48
Rice, Lewis & Son: Boiler tubes, 18, 30.96: sundries, 10 60	41 56
Rose, G. M. & Son Co: Stationery, 9.98: Rennie, Wm., seeds, 13 03	23 01
Rutherford Marshall & Co: Butter contract, 3890 lbs, at 16¾c, 651.77: bacon and ham, 109 lbs, 15.67: lard. 36 lbs, 4.43	671 87
Swan Bros: Coffee, 70 lbs, 19.50: eggs, 339 doz, 67.97: biscuits, 12 59: lard, 175 lbs, 23.81: extracts, 3.70: sugar, 5107 lbs, 201.28: soap, 10.20: vinegar, 2 gals, 1.50: bacon, 70 lbs, 11.94: poultry, 2.05: salmon, 3 doz cans, 4.35: currants, 8.08: raisins, 135 lbs, 13.73: bak'g powder, 6 doz, 27.00: prunes, 150 lbs, 10.50: mixed peel, 20 lbs, 3.46: nuts, 23 lbs, 6 75: tea, 500 lbs, 85 00: corn starch, 24 lbs, 1.68: corn, tomatoes, &c, 10 doz cans, 9.15: gelatine 2 doz, 2.70: sundries, 222.13	749 07
Snow, R. B: Eggs, 278 doz, 53.83: fish, 42.60: fruit and berries, 80.28: sundries, 18.99	195 70
Sundry Newspapers: Advertising *re* supplies, 58.00: re fuel, 92.95	150 95
Sisters of Precious Blood: Chapel supplies	32 75
Steinberger, Hendry Co: Stationery and school supplies	101 91
Smith & Lawrason: Powder ammonia, 259 lbs	15 54
Smith, M. E. & Co: Laundry soap, 561 lbs	30 85
St. Michael's Cathedral: Cab hire, *re* religious services	100 00
Saunders, W. E. & Co: Drugs and chemicals, 79.07: marking ink 6.00	85 07
Sanderson M: Services as attendant, 148.10: Seamen Kent & Co: screens, 12, 14.00	162 10
Stewart & Wood: Varnish, 5 gals, 8.75 paints and oils, 7.44	16 19
Sparrow, Geo. & Co: Dish pans, 9, 18.00: wringer, 10.00: tea spoons, 1 doz, 4.00: knives, 1 doz, 4.50: boilers, 20.00: iron, tinware, &c, 29.40	85 90
Simpson, The R. Co: Wall paper, 34.69: carpet sweepers, 2, 5.50: fur caps, 3, 15.00: sundries, 13.37	68 56
Sadlier, D. & J. & Co: Chapel supplies	12 77
Toronto Laundry Soap Co: Laundry soap, 1229 lbs	61 45
Taylor, John & Co: Laundry soap, 5000 lbs, 189.86: toilet soap, 8 boxes, 30.32	220 18
Upper Canada Tract Soc'y: Songs and solos, 8.40: bibles, 10.80	19 20
Wallace, W. A: Hay, 2135 lbs, 14.40: Warwick Bros. & Rutter, print'g and bd'g, 67.80	82 20
Wheeler & Bain: Wash basin stands, 2 doz, 36.00: soap dishes, 8 doz, 14.80: granite bowls, 2 doz, 4.00: chambers, 1 doz, 5.00: iron, tinware, &c, 125.26	185 06
Wood, W. Lloyd: Vaccine, 3 60: drugs and chemicals, 12.35	15 95
Watkins, J. H. & Co: Hay, 2831 lbs, 18.01: ch. oats, 100 lbs, 1.60	19 61
Wells, Josephine: Dentistry, 135.75: Water Works Dept, water, 1,026.62	1,162 37
Wheeler, R: Allowance in lieu of meals, 74.25: Yates, George, wages as carpenter, 90.85	165 10
Zanzibar Paint Co: Paint	12 50
Sundry Persons: Accounts unenumerated under 10.00	109 10
Total Public Institutions Maintenance	$864,398 93

IMMIGRATION.

Peter Byrne: Twelve months' salary and allowance as Agent at Liverpool	$2,360 98
E. A. Byrne: do Clerk do	599 40
Peter Byrne: To pay travelling expenses of self and staff	204 27
do do printing, advertising and contingencies	1,148 75
do : do office rent, and expenses, including fuel, stationery, etc	437 40
do : Cash on hand to be accounted for	1,034 22
do : To pay difference in exchange	25 66
Might Directories: City directory	5 00
A. J. Reading: Slides and views New Ontario	15 85
C. W. Irwin: Freight and brokerage	6 40
	5,837 93
Less cash on hand January 1st, 1902	1,060 68
Total Immigration	4,777 25

AGRICULTURE.

GRANTS TO DISTRICT SOCIETIES ($75,337.60).

G. C. Creelman: Allowance as Superintendent of Agricultural Societies	200 00
Addington District, 446.00: Camden E, 140 00: Hinchinbrook, 140 00: Sheffield, 74.00	800 00
Algoma W. District, 660 00: Oliver, 140 00	800 00
Algoma E. District, 380.00: Day, Wells and Bright additional, 36.00: Thessalon, 103 00: Gladstone, Bright and Thompson, 35.00. Johnston and Aberdeen, 54.00: Laird, 55.00: St. Joseph Island, 70 00: Plummer additional, 92 00	825 00
Brant, North District, 520.00. Onondaga, 140.00: Paris Horticultural, 140.00	800 00
Brant, South District, 520.00: Burford, 140.00: Brantford Horticultural, 140.00	800 00
Brockville District	800 00
Bruce, Centre District, 380.00: Elderslie, 54.00: Greenock, 68.00 Huron, 68 00: Chesley Horticultural,58 00: Kincardine South, 68.00: Kincardine Horticultural,54.00: Paisley Horticultural, 50.00	800 00
Bruce, North District, 380 00: Amabel and Albemarle, 73.00: Arran, 53.00: Bruce, 70.00: Eastnor, 41.00: Saugeen, 27.00: Port Elgin Horticultural, 48.00: Tara Horticultural, 35.00: Tiverton and North Kincardine, 73 00	800 00
Bruce, South District, 380 00: Carrick, 106 00: Culross, 101.00: Kinloss, 107.00: Walkerton Horticultural, 106.00	800 00
Cardwell District, 455 00: Albion and Bolton, 140.00: Caledon, 140 00: Tecumseth, 65 00	800 00
Carleton District, 425.00: Fitzroy, 140.00: Huntley, 135.00: March, 100.00	800 00
Cornwall Town and Township District	350 00
Dufferin District, 413.00 Luther East, 140.00: Melancthon, 140.00: Orangeville Horticultural, 107.00	800 00
Dundas District, 380.00: Matilda, 140.00: Mountain, 140.00: Winchester, 140 00	800 00
Durham, East District, 380 00 Cavan, 125.00: Hope, 129.00: Port Hope Horticultural, 100.00: Millbrook Horticultural, 56.00	800 00
Durham, West District, 380 00: Cartwright, 120 00: Clarke, 120 00: Darlington, 107.00 Bowmanville Horticultural, 73.00	800 00
Elgin, East District, 380 00: Bayham, 77.00: Dorchester South, 59 00: Malahide, 76 00: Yarmouth, 76.00 Aylmer Horticultural, 77 00: Springfield Horticultural, 55 00	800 00
Elgin, West District, 520.00: Aldborough, 140.00: Southwold and Dunwich, 140 00	800 00
Essex, North District, 380 00: Maidstone and Sandwich East, 105 00: Tilbury, N & W, 105 00: Rochester and Maidstone, 105.00: Windsor, Sandwich and Walkerville Horticultural, 105.00	800 00
Essex, South District, 380.00: Anderdon and Malden, 89.00: Colchester North, 88 00: Colchester South, 89.00: Pelee Island, 33.00: Leamington Horticultural, 32 00: Mersea, 89.00	800 00
Frontenac District, 405.00: Kingston Township, 110.00: Portland and Loughboro, 76.00: Storrington, 69 00: Wolfe Island, 140 00	800 00
Glengarry District, 660 00: Kenyon, 140.00	800 00
Grenville, South District, 520.00: Edwardsburg, 140 00 Cardinal Horticultural, 140.00	800 00
Grey, East District, 380.00 Artemesia, 69.00: Collingwood Tp. 70 00: Holland, 69 00: Euphrasia, 69.00: Osprey, 50.00: Proton, 62 00: Thornbury Horticultural, 31 00	800 00
Grey, North District, 380.00: Derby, 77.00: Keppel, 44.00: Sullivan, 77 00: Sydenham, 77 00: Meaford Hort'l, 43 00: St. Vincent, 73.00: Owen Sound Horticultural, 29.00	800 00
Grey, South District, 380 00: Bentinck, 93 00: Egremont, 93.00: Glenelg, 90.00: Normanby, 92.00: Durham Hort, 52.00	800 00
Haldimand District, 380.00: Rainham and S. Cayuga 82 00: Oneida and Seneca, 93.00: Walpole, 93.00: Cayuga Hort, 93 00: Hagersville Hort, 59.00	800 00

AGRICULTURE.—*Continued.*

GRANTS TO DISTRICT SOCIETIES.—*Continued.*

Halton District, 380.00: Esquesing, 90.00: Nassagaweya, 90.00: Trafalgar, 90.00: Nelson and Burlington, 90.00: Oakville Hort, 60 00	$800 00
Hamilton District	350 00
Hastings, East District, 420.00: Hungerford, 140.00: Tyendinaga, 132.00: Deseronto Horticultural, 108.00	800 00
Hastings, North District, 380.00: Wollaston, 89.00: Monteagle *et al*, 60.00 Dungannon and Faraday, 94.00: Stirling Horticultural, 63.00: Marmora, 114.00	800 00
Hastings, West District, 660.00: Belleville Hort, 140.00	800 00
Huron, East District, 387.00: Grey, 104.00: Howick, 94.00: Turnberry, 140.00: Morris, 135.00	860 00
Huron, South District, 380.00: Hay, 91.00 Stanley, 91.00: Tuckersmith, 91.00: Stephen and Usborne, 91.00: Seaforth Horticultural, 56.00	800 00
Huron, West District, 386.00: Ashfield and Wawanosh, 101.00: Wawanosh East, 99.00: Clinton Hort, 73.00. Goderich Hort, 81.00	740 00
Kent, East District, 380.00: Camden, 105.00: Howard, 105.00: Orford, 105: Harwich, 105.00: Harwich (grant for 1901), 84.00	884 00
Kent, West District, 380.00: Raleigh, 124.00: Romney, 123.00: Chatham Hort, 50.00: Chatham, Dover and Wallaceburg, 123.00	800 00
Kingston District, 210.00: Kingston Horticultural, 140.00	350 00
Lambton, East District, 380.00: Bosanquet, 78.00: Brook and Alvinston, 78.00: Warwick, 78.00: Euphemia and Dawn, 80.00: Plympton and Wyoming, 77·00: Forest Horticultural, 77.00	848 00
Lambton, West District, 380.00: Enniskillen and Petrolea, 118.00: Moore, 118.00: Sarnia Twp, 57.00: Sombra, 79.00	752 00
Lanark, North District. 380.00: Dalhousie, 115.00: Lanark, 108.00: Pakenham, 98.00: Lanark Horticultural, 99.00	800 00
Lanark, South District. 380.00 Bathurst, 52.00: Drummond, 53.00: Sherbrooke,S, 68.00: Perth Hort, 84.00: Smith's Falls Hort, 107.00	744 00
Leeds and Grenville, North District, 407.00: Elmsley South 86.00: Kitley, 103.00: Oxford, 140 00: Kemptville Hort, 64.00	800 00
Leeds, South District, 396.00: Crosby North, 140.00: Lansdowne, 140.00: Rear Leeds and Lansdowne, 124.00	800 00
Lennox District, 386.00: Amherst Island, 136.00: Ernestown, 138 00: Napanee Hort, 140.00	800 00
Lincoln District, 380.00: Clinton, 102.00: Grimsby North, 50.00: Grimsby South, 96.00: Louth, 82.00: Grimsby Hort, 45.00: St. Catharines Hort, 45.00	800 00
London District, 210.00: London Horticultural, 140 00	350 00
Middlesex, East District, 380.00: Dorchester, North, 105.00: London Twp, 105.00: Nissouri West, 105.00	695 00
Middlesex, North District, 380.00: Adelaide, 118.00: Lobo, 123.00: McGillivray, 54.00: Williams E, 70.00: Williams W, 55.00	800 00
Middlesex, West District, 380.00: Caradoc, 85.00: Delaware, 85.00: Metcalfe, 80.00: Mosa and Ekfrid, 85.00: Strathroy Horticultural, 85 00	800 00
Manitoulin District, 396.00: Assiginack, 140.00: Billings, 112.00: Howland, 89.00: Campbell and Providence Bay, 63.00	800 00
Monck District, 380.00: Caistor, 55 00: Canboro, 50.00: Moulton, 105.00: Pelham, 105 00: Wainfleet, 105.00	800 00
Muskoka, North District, 450.00: Stephenson, 140.00: Stisted, 140 00: Humphrey and Cardwell, 140.00	870 00
Muskoka, South District, 443.00: McLean, 49.00: Medora and Wood, 74.00: Morrison, 94.00: Muskoka and Gravenhurst, 140.00	800 00
Niagara, Town, Township & District	350 00
Nipissing, East District, 520.00: Bonfield, 140.00: Ferris, 140.00	800 00
Nipissing, West District. 550.00: Widdifield, 250.00	800 00
Norfolk, North District, 380.00: Middleton, 117.00: Townsend, 115.00: Windham, 117.00: Simcoe Horticultural, 71.00	800 00
Norfolk, South District, 380.00: Charlotteville, 118.00: Houghton, 118.00: Walsingham N, 118.00: Port Dover Hort'l, 66.00	800 00
Northumberland, East District, 380.00: Brighton, 81.00: Cramahe, 76.00: Percy, 68.00: Murray, 94.00 Seymour, 101.00	800 00
Northumberland, West District, 520.00: Alnwick, 140.00: Cobourg Hort'l ,140.00	800 00
Ontario, North District, 380.00: Brock, 74.00: Mara, 74 00: Scott, 52.00: Scugog, 74.00: Thorah, 73.00: Uxbridge, 73.00	800 00
Ontario, South District	800 00
Oxford, North District, 380.00: Zorra E, 85.00: Blandford, 34.00: Blenheim, 86.00: Nissouri E, 65.00: Zorra W. and Embro, 86 00: Woodstock Hort'l, 64.00	800 00
Oxford, South District, 380.00: Dereham, 72.00: Norwich N, 71.00: Norwich S, 71.00: Oxford E, 48.00: Oxford N, W, and Ingersoll, 71.00: Norwich Hort'l, 30.00: Tillsonburg Hort'l, 57.00	800 00
Ottawa District	350 00
Parry Sound, West District, 450.00: Hagerman, Croft *et al*, 140.00: McKellar, 140.00.	730 00
Parry Sound, East District, 380.00: Chapman, 59.00: McMurrich, 57.00: Machar, 65.00: Perry, 86.00: Strong, 82.00: Himsworth S, 71.00.	800 00
Peel District, 435.00: Brampton Hort'l, 130.00: Toronto Twp, 140.00: Toronto Gore, 95.00:	800 00

AGRICULTURE.—*Continued.*

GRANTS TO DISTRICT SOCIETIES.—*Continued.*

Perth, North District, 380.00: Easthope N, 46.00: Elma, 90.00: Mornington, 96.00: Listowel and South Wallace, 96.00 Stratford Horticultural, 92.00	$800 00
Perth, South District, 380.00: Easthope S, 103.00: Hibbert, 56.00: Blanshard, 103.00: Fullarton and Logan, 103.00: Mitchell Horticultural, 55.00	800 00
Peterboro, East District, 384.00: Douro and Dummer, 140.00: Galway, 55.00: Otonabee, 107.00: Peterboro and Ashburnham Hor'l, 136.00: Burleigh *et al*, 56.00	878 00
Peterboro, West District, 403.00: Harvey, 70.00: Monaghan S, 109.00: Smith and Ennismore, 140.00	722 00
Prescott District, 520.00: Alfred, 140.00: Plantagenet S, 140.00	800 00
Prince Edward District, 383.00: Ameliasburg, 140.00: Sophiasburg, 111.00: Hillier and Hallowell, 77.00: Picton Hort'l, 89.00	800 00
Renfrew, N District, 590.00: Grattan and Wilberforce, 140.00: Ross and Bromley, 140.00.	870 00
Renfrew, South District, 450.00: Radcliffe and Raglan, 140.00: Renfrew Hort'l, 140.00.	730 00
Russell District, 399.00: Cambridge, 98.00: Clarence, 99.00: Russell, 140.00: Osgoode, 64.00	800 00
Simcoe, East District, 380.00: Matchedash, 111.00: Oro, 78.00: Tiny and Tay, 111.00: Orillia Horticultural, 74.00: Midland Horticultural, 46.00	800 00
Simcoe, South District, 380.00 Essa, 87.00: Gwillimbury W. and Bradford, 129.00: Innisfil, 75.00: Tossorontio, 129.00	800 00
Simcoe, West District, 380.00: Barrie Horticultural, 49.00. Nottawasaga, 80.00: Flos, 57.00: Sunnidale, 74.00: Vespra, 80.00 Collingwood Hort'l, 80.00	800 00
Stormont District, 403.00: Finch, 140.00: Osnabruck, 140.00: Roxborough, 117.00..	800 00
Toronto District, 410.00. Toronto Hort'l, 140.00	550 00
Victoria, North District, 417.00: Eldon, 140.00: Somerville, 126.00: Fenelon, 117.00: Fenelon, grant for 1901, 140.00	940 00
Victoria, South District, 380.00. Emily, 98.00; Mariposa, 106.00: Ops, 70.00: Verulam, 67.00 Lindsay Hort'l, 79.00	800 00
Waterloo, North District, 380.00: Wellesley, 123.00: Woolwich, 122.00: Elmira Hort'l, 52.00: Waterloo Hort'l, 123.00	800 00
Waterloo, South District, 380.00: Wilmot, 140.00 Galt Hort'l, 114.00: Hespeler Hort'l, 64.00: Preston Hort'l, 102.00	800 00
Welland District, 380.00: Bertie, 78.00: Stamford, 121.00: Thorold, 115.00: Niagara Falls Hort'l, 61.00: Port Colborne Hort'l, 45.00	800 00
Wellington, Centre District, 380.00: Erin, 96.00: Garafraxa W, 78.00: Nichol, 79.00: Pilkington, 96.00: Elora Hort'l, 35.00: Fergus Hort'l, 36.00	800 00
Wellington, South District, 380.00: Eramosa, 116.00: Guelph Twp, 82.00: Puslinch, 117.00.. Guelph Hort'l, 105.00	800 00
Wellington, West District, 380.00: Arthur, 76.00: Maryborough, 49.00: Minto, 44.00: Palmerston and North Wallace, 75.00: Peel and Drayton, 75.00: Clifford Hort'l, 70.00: Mount Forest Hort'l, 31.00	800 00
Wentworth, N. District, 380.00: Beverly, 140.00. Flamboro East, 140.00: Flamboro West, 140.00	800 00
Wentworth, South District, 380.00: Ancaster, 85.00: Barton, 85.00. Binbrook, 84.00: Glanford, 82.00: Saltfleet, 84.00.	800 00
York, East District, 469.00: Markham, 121.00: Scarboro, 140.00: York and Weston, 140.00.	870 00
York, North District, 380.00: Georgina and Gwillimbury N, 121.00: Gwillimbury E, 122.00: King, 123.00: Newmarket Hort'l, 54.00	800 00
York, West District, 419.00: Etobicoke, 104.00: Vaughan, 140.00: Toronto Junction Horticultural, 67.00	730 00
Outlying Districts :—	
McIrvine & Alberton Tp, 140.00 Emo, 140.00: Tuscarora Indians, 100.00: Cardiff Tp, 60.00: Dysart *et al*, 100.00 Glamorgan, 60.00: Minden *et al*, 100.00: Chippawa Indians, 50.00: Oneida Indians, 50.00: Rama, Dalton & Ryde, 50.00: Sudbury, 140.00 Temiskaming Lake, 140.00	1,130 00
Jno. Davidson: Shorthorn bull, for Muncey Indians in lieu of grant	69

GRANTS TO ASSOCIATIONS ($26,648.60.)

Dominion Cattle Breeders' Association	Legislative grant	2,000 00
Dominion Sheep Breeders' do	do	2,000 00
Dominion Swine Breeders' do	do	2,000 00
Fruit Growers' Association	do	1,800 00
Ontario Experimental Union	do	1,400 00
Canadian Horse Breeders' Association	do	2,000 00
Eastern Ontario Poultry do	do	1,000 00
Western Ontario Poultry do	do	1,000 00
Entomological Society do	do	1,000 00
Eastern Ontario Dairymen's Association	do	4,000 00
Western Ontario do	do	4,000 00
Beekeepers' Association, including inspection	do	1,248 60
Sugar Beet Association	do	200 00
Cattle, Sheep and Swine Assns' (Eastern Fair, Ottawa).	do	3,000 00

AGRICULTURE.—*Continued.*

FARMERS' INSTITUTES ($13,739.43).

Treasurer, Farmers' Institutes :—
Addington, 25.00: Algoma, Centre, 25.00: Algoma, E, 25.00: Amherst Island, 25.00:
Brant, N, 25.00: Brant, S, 25.00: Brockville, 25.00: Bruce, Centre, 25.00:
Bruce, N, 25.00: Bruce, S, 25.00: Bruce, W, 25.00: Carleton, 25 00:
Cornwall, 25.00: Dufferin, 25.00: Dundas, 25 00: Durham, E, 25.00:
Durham, W, 25.00: Elgin, E, 25.00: Elgin, W, 25.00: Essex, N, 25.00:
Essex, S, 25.00: Frontenac, 25.00: Glengarry, 25.00 Grenville, S, 25.00:
Grey, Centre, 25.00: Grey, N, 25.00: Grey, S, 25.00: Haldimand, 25.00:
Halton, 25.00: Hastings, E, 25.00: Hastings, N, 25.00: Hastings, W, 25.00:
Huron, E, 25.00 Huron, W, 25.00: Huron, S, 25.00: Kent, E, 25.00:
Kent, W, 25.00: Lambton, E, 25.00: Lambton, W, 25.00: Lanark, N, 25.00:
Lanark, S, 25.00: Leeds and Grenville, 25.00: Leeds, S, 25.00: Lennox, 25 00:
Lincoln, 25.00: Manitoulin, E, 25.00 Manitoulin, W, 25.00: Middlesex, E, 25.00:
Middlesex, N, 25.00 Middlesex, W, 25.00: Monck, 25 00: Muskoka, C, 25.00:
Muskoka, N, 25.00: Muskoka, S, 25.00. Nipissing, W, 25.00: Norfolk, N, 25.00:
Norfolk, S, 25.00: Northumberland, E, 25.00: Northumberland, W, 25.00:
Ontario, N, 25.00: Ontario, S, 25.00 Oxford, N, 25.00 Oxford, S, 25 00:
Parry Sound, E, 25.00: Parry Sound, W, 25 00: Peel, 25.00: Perth, N, 25.00
Perth, S, 25.00: Peterborough, E, 25.00: Peterborough, W, 25.00: Prescott, 25.00:
Prince Edward, 25.00: Renfrew, N, 25.00: Renfrew, S, 25.00: Russell, 25.00:
Simcoe, C, 25.00: Simcoe, E, 25.00: Simcoe, S, 25.00: Simcoe, W, 25.00:
Stormont, 25.00: St. Joseph Isl, 25.00: Victoria, E, 25.00: Victoria, W, 25.00:
Waterloo, N 25.00: Waterloo, S, 25.00: Welland, 25.00 Wellintgon, C, 25.00:
Wellington, E, 25 00: Wellington, S, 25.00: Wellington, W, 25.00: Wentworth, N, 25.00:
Wentworth, S, 25.00 York, E, 25.00: York, S, 25.00..... .... $2,350 00

Treasurer Women's Institutes:—
Amherst Island, 10.00: Brant, S, 10.00: Bruce, C, 10.00: Bruce, W, 10.00:
Bruce, S, 10.00. Dufferin, 10.00: Durham, E, 10.00: Durham, W, 10.00:
Elgin, E, 10.00: Grey, C, 10.00: Grey, N, 10.00: Grey, S, 10.00:
Halton, 10.00: Hastings, E, 10.00: Hastings, N, 10.00: Hastings, W, 10.00:
Huron, E, 10.00: Huron, W, 10.00: Kent, W, 10.00: Lincoln, 10.00:
Middlesex, W, 10.00: Monck, 10.00: Muskoka, S, 10 00. Northumberland, E, 10.00:
Northumberland, W, 10.00: Norfolk, N, 10 00: Ontario, N, 10.00: Ontario, S, 10.00:
Oxford, N, 10 00 Peterboro, W, 10.00: Peel, 10.00: Simcoe, C, 10.00:
Simcoe, S, 10.00: Simcoe, W, 10 00: Wellington (Union Branch), 10.00: Victoria, E, 10.00:
Waterloo, N, 10.00: Welland, 10.00: Wentworth, S, 10.00: York, E. 10.00:
York, W, 10,00 .. .. 410 00

G. C. Creelman.....Twelve months' salary as Superintendent 1,500 00
A. P. Westervelt....One do Accountant 50 00
L. S. Vernon .....Eleven do do 550 00
P. W. Hodgetts ....Services as Clerk at 800.00 per year 216 65
W. N. Hutt..... do 750.00 do 284 98
S. Elderkin: Services typewriting, 300.17; M. M. Brough: Services typewriting, 125.83 426 00
W. Brodie: do 58 67; A. Fox do 45.50 104 17
Extra services:— L. S. Vernon, 10.00: M. M. Brough, 10.00: E. Wells, 5.00 ..... 25 00
J. Roberton Work in office, 6.00. J. Kernahan. Work in office, 1.50..... 7 50

Services lecturing at 2.50 per day :—
D. C. Anderson, 180 00: J. Barton. 65.00: Dr. C. J. S. Bethune, 22.50:
Mrs. A. E. Campbell, 72.50: J. W. Clark, 55.00: G. C. Caston, 112.50:
G. R. Cottrell, 130.00: D. Derbyshire, 22.50: D. Drummond, 87.50: F. C. Elford, 95.00:
A. Elliott, 155.00: J. G. Foster, 60.00: R. H. Field, 52.50 W. S. Fraser, 77.50:
H. Glendenning, 175.00: J. Gardhouse, 45.00: A. Gilchrist, 27.50:
Mrs. Isa Gilchrist, 20.00: M. A. Gee, 77.50 W. N. Hutt, 117.50:
Alice Hollingworth, 52.50. A. C. Hallman, 55.00: Ida M. Hunter, 17.50:
Mrs. A. Kinney, 72.50 F. M. Lewis, 120.00: Laura Linton, 90.00: E. Lee, 55.50:
H. McAllister, 37.50: F McMillan, 32.50. Blanche Maddock, 152.50: T. H. Mason, 157.50:
C. W. Nash, 145.00: J. E. Orr, 110.00: A. W. Peart, 62.50: Dr. H. G. Reed, 120.00:
Laura Rose, 40.00 T. G. Raynor, 135.00. A. J. Reynolds, 47.50:
J. Sheppard, 77.50: F. A. Sheppard, 77.50: A. E. Silverwood, 10.00:
R. S. Stevenson, 80.00: F. J. Sleightholm, 80.00: Agnes Smith, 112.50:
E. B. Stevenson, 15.00: Mrs. E. M. Torrance, 167.80..... ..... 3,772 50

Travelling expenses:—
D. C. Anderson, 9.30. G. C. Creelman, 292.04: G. C. Caston, 12.45: J. W. Clark, 12.85:
Mrs. A. E. Campbell, 6.10: G. R. Cottrell, 9.75: H. H. Dean, 7.65: A. Elliott, 15.80.
F. C. Elford, 7.30. W. S. Fraser, 12.60: R. H. Field, 17.90: J. G. Foster, 57.90:
M. A. Gee, 8.40 J. Gardhouse, 5.55: W. Graham, 6.35: Ida M. Hunter, 31.60:
A. C. Hallman, 8.90: W. N. Hutt, 59.00: Alice Hollingworth, 10.25:
J. W. Hart, 27.70 Mrs. A. Kinney, 16.50. E. Lee, 8.35: Laura Linton, 9.05:
W. Lochhead, 50.35: T. McMillan, 19 35 T. H. Mason, 10.90:
Blanche Maddock, 30.95: J. E. Meyer, 4.00: J. E. Orr, 21.65: A. W. Peart, 4.85:
T. G. Raynor, 12 60: A. J. Reynolds, 2.10: F. A. Sheppard, 11.80:
Agnes Smith, 67.25: A. E. Silverwood, 11.65 Arch. Smith, 3 80: R. Thompson, 12.55:
Mrs. E. M. Torrance, 45.85: L. S. Vernon, 7.55: E. E. Wells, 4.90: C. A. Zavitz, 3.45: 978 79

AGRICULTURE.—*Continued.*

FARMERS' INSTITUTES.—*Continued.*

Travelling expenses of self and delegates :—	
D. Anderson, 289.75: G. H. Barr, 100.00: Rev. C. J. S. Bethune, 24.35:	
G. C. Caston, 187.85: G. R. Cottrell (bal 1901) 1.55: J. W. Clark, 150.00:	
D. Drummond, 107.00: A. Elliott, 252.50: W. S. Fraser, 150: H. Glendenning, 143.75:	
A Gilchrist, 59.45: W. N. Hutt, 138.10: A. C. Hallman, 100.00: H. Jones, 150.00:	
F. M. Lewis, 76.30: E. Lee, 21.83: T. H. Mason, 225.00: A. McNeill, 32.05:	
C. W. Nash, 100.00: J. E. Orr, 217.12: A. W. Peart. 125.00: T. G. Raynor, 310.55:	
H. G. Reed, 100.00: R. S. Stevenson, 150.00: E. B. Stevenson, 32.25:	
A. E. Sherrington, 125.00	$3,369 40
Warwick Bros. & Rutter, printing and binding, 38.66: C. W. Young, printing, 5.00	43 66
Riordon Paper Mills: Paper, 101.17: L. K. Cameron: Paper, 5.73: stationery, 134.19	241 09
Mrs. Hubertus, postage stamps, 245.00: G. J. Castle: Copy-holder, 3.50	248 50
Creelman Bros. Typewriter Co: Typewriter supplies, 75.20: rent of typewriter, 8.00	83 20
Creelman Bros. Typewriter Co: Balance on typewriter	57 00
Canadian Typewriter Co: Supplies	8 70
Steinberger Hendry Co: Mounting maps	8 00
D. Pike Co: Rent of tent, tables, etc, at Exhibition	16 00
W. Wright: Cartage to Exhibition, 2.00: E. E. Wells: Expenses at Exhibition, 5.17	7 17
E. J. Bengough: Charts for lectures, 6.00: J. Passmore: Sheeting for charts, 4.25	10 25
Utensils for lectures :—Agnes Smith, 11.32: Laura Linton, 2.60: S. A. Morris, 7.46	21 38
J. Buchanan: Preparing cases of grass samples, 60.00: G. B. Morris: Padlocks for boxes, 1.20	61 20
A. A. Chown: Article for Women's Hand-Book	25 00
J. Barton: Article for report, 10.00: M. E. McDonald: Article for report, 5 00	15 00
Mrs. R. Rogers: Article for report, 5.00: T. C. Elford: Cuts for report, 4.50	9 50
A. B. Thompson: Services as judge, sheep and swine, E. Simcoe Agricultural Society	6 00
R. S. Stevenson: Services as judge, cattle, E. Simcoe Agricultural Society	6 00
W. Drummond: Services *re* chicken experiments	10 00
American Association Farmers' Institutes: Dues	10 00
Subscriptions :—*American Kitchen Magazine*, 1.00: *Breeders' Gazette*, 2.00:	
International Railway Guide, 2.00: *Rural New Yorker*, 1.00:	
American Gardening, 1.50: *Country Gentleman*, 3.00	10 50
Farming World: Copies for Institute officers	243 80
Sun Pub. Co.: do	46 74
W. Bogart: Photos for Dairy Schools, 70c: Bell Telephone Co: Messages, 16.75	17 45
G. N. W. Telegraph Co: Telegrams, 19.38: C. P. R Telegraph Co. Telegrams, 28.82	48 20
Canadian Express Co: Charges, 47.40: Dominion Express Co: Charges, 6.10	53 50
C. P. Railway Co: Freight charges, 68c: C. M. Richardson: Cartage, 1.50	2 18
Doane Bros. Livery: Cab Hire, 3.00: National Council of Women: Advertisement, 5.00	8 00
	15,363 01
Less refund on account of travelling expenses and disbursements, 1901 166 22	
Less refunded by Institutes *re* supplementary meetings, 1901-2 1,457 36	
	1,623 58
	13,739 43

INCIDENTALS ($30,531.79).

Henry Wade, Twelve months' salary as Registrar Live Stock	1,500 00
Warwick Bros. & Rutter, printing and binding reports, etc :—	
Agriculture, 23.50: Farmers' Institutes, 256.88: Sugar Beet, 41.80:	
Agricultural College, 761.00: San Jose Scale, 78.50: Fumigation, 12.30:	
Fruit Experiments, 74.70: Beekeepers', 22.90: Experimental Union, 390.20:	
Fruit Growers', 847.85: Dairymens', 794.40: Poultry, 355.30: Entomological, 174.90:	
Live Stock, 644.60: Fairs, Exhibitions, etc., 152.50: Bulletins, 623.10:	
Hand Book, 254.90: List of Members, etc., 98.17: Circulars, forms, etc, 76.72	5,684 22
L. K. Cameron, Paper, 602.48: paper for bulletins, 390.25: stationery, 249.75	1,242 48
Riordon Paper Mills, paper for reports, etc.:—	
San Jose Scale, 41.20: Experimental Fruit Stations, 100.62: Fruit Growers', 805.35:	
Experimental Union, 351.74: Beekeepers', 28.30: Dairymens', 861.82:	
Entomological, 165.26: Poultry, 362.63: Live Stock, 634.13: Fumigation, 11.55:	
Registrar Live Stock, 40.33: Sugar Beet, 25.13: Agricultural College, 700.87:	
Fairs and Exhibitions, 42.42: Bulletins, etc., 281.48	4,452 83
W. McMaster, Postage stamps, 335.00: Mrs. Hubertus, Postage stamps, 100.00	435 00
Thomson Engraving Co., Etchings, 20.83: Alexander Engraving Co., Engravings, 15.50	36 33
Grip Printing and Pub. Co, Engravings, etc, 6.84: half tones, 98.27	105 11
Toronto Engraving Co., Engravings, 11.00: Rolph Smith & Co., Stamping, 6.00	17 00
Services, @ 2.00 per day, revising and mailing reports and bulletins :—	
J. W. Brant, 159.00: L. Mackey, 108.00: R. H. Hodgson, 106.00: G. Eadie, 108.00:	
T. M. Gormley, 104.00: A. H. McLeod, 43.00: G. R. Elliott, 59.00:	
R. W. Macintyre, 44.00: W. Ward, 96.00: J. A. Brodie, 24.00: T. D. Watson, 66.00	917 00
D. Cashman, Extra clerk and messenger, @ 4.50 per week, 9.00: @ 5.00 per week, 257.50	266 50
T. Lynch, Messenger, @ 50.00 per month, 400.00: P. McMaster, Copying lists, 3.00	403 00
C. Pardoe, Addressing envelopes, 3.00: F. Rightmeyer, Addressing envelopes, 278.68	281 68
J. Buchanan, Drafting illustrations, pamphlet "Nature Study,"	55 00
R. Mills do do	6 00

AGRICULTURE.—*Continued.*

INCIDENTALS.—*Continued.*

T. Lynch, paste $7 08

Dairy Instruction :—
G. H. Barr, Services as Instructor @ 100.00 per month, 900.00.....
G. G. Publow do do 125.00 do 1000.00.....
A. Smith do do 118.00 do 826.00.....
Travelling expenses and disbursements :—
G. H. Barr, 239.99: G. G. Publow, 177.50: A. Smith, 189.25: J. W. Hart, 302.85:
H. Glendenning, 81.25: W. J. Carson, 54.00: H. H. Dean, 20.25: S. G. Lawson, 100.90:
F. Nunan, Cheese and butter instructors' books, 116.61 ... ...
G. B. Morris, Thermometer, 1.75: R. S. Williams Photo, 50c:
G. C. Creelman, Accountable warrant, 200.00..... 4,210 85

Sugar beet experiments :—
Robert Harcourt: Travelling expenses and disbursements, 431.97:
S. M. Pearse: Services self and assistant, 26.25:
E. B. Shuttleworth: Services self and assistant, 20.00: travelling expenses, 21.45:
A. E. Shuttleworth : Services, 165.00: expenses, 33.00:
S. Rennie: do 56.25 do 92.40:
W. J. Price: do 7 00: do 10.45:
R. Little: do 145.00: do 193.35:
D. Anderson: do 7.50: do 6.10:
W. H. McCracken: do 6.25: do 1 75:
R. McMillan: do 69.80: do 2.85:
R. Johnson: do 32.00: do 10.40:
Services :—R. Devitt, 22,00: S. E. Shantz, 3.00: J. T. Murphy, 3.00:
D. N. McEwen, 29.95: L. A. C. Panton, 33.12: W. C. Good: Expns, 14.05:
H. R. Corson: Expenses, 2.35: Standard Fertilizer & Chemical Co: Chemicals, 9.60:
Ontario Sugar Co: Seed, 17.00: analyzing samples, 13.14:
Knauth, Nachod & Kuhne: 1,000 lbs seeds, 85.00: Guelph Cartage Co: Cartage, 13 54:
Can. Express Co: Charges, 35.25: Vokes Hardware Co: Fence, 3.60:
J. E. Brethour: Lumber, etc., 8.05: Reynolds & Son: Lettering charts, 25.45:
A. Mueller: Typewriting, 2.50: T. Cleghorn: Bags, 4.80:
J. Beatty: Livery hire, 16.00: P. Spragge: Livery hire, 44.50:
Hunt & Colter: do 24.50: McIntosh & Galbraith: Printing and stationery, 5.00:
Farming World. Electro. 2.50: *Globe*: Advertising, 18.80 ..... 1,775 47

Fall Fairs :—
Services judging: G. B. Hood, 37.50: H. G. Reed, 50.00: A. Elliott, 32.50:
A. W. Smith, 32.50: W. F. Kydd, 42.50: R. S. Stevenson, 37.50: J. Campbell, 40.00:
J. M. Gardhouse. 37.50: W. Innes, 37.50: T. H. Shore, 32.50: M. Cumming, 35.00:
J. E Douglas, 5.00.. R. H. Harding, 10.00: S. N. Culver, 27.50:
Expenses as Judge : G. B. Hood, 154.70: H. G. Reed, 125.20:
A. Elliott, 142.10: A. W. Smith, 152.60: W. F. Kydd, 5.60: R. S. Stevenson, 8.35:
J. Campbell, 9.15: M. Cumming, 2.40: J. E. Douglas. 6.35: W. R. Graham, 10.65:
E. E. Cooper: Prizes for exhibits by schools, 42.00 work on plots, 40.60:
Galbraith Photo Co: Photos of plots, 8.50: W. A. Freeman Co: Fertilizer, 10.35:
J. H. Doughty: Freight and cartage, 3.43 ..... 1,179 48

Barberry hedges and shrubs :—
Compensation for shrubs destroyed: F. W. Radcliffe, 75.00: James Cross, 20.00.
Mrs. F. H. Plummer, 6.00: W. Wilkinson, 4.00. S. G. Blair, 5.00: A. Hughes, 8.00:
J. C. Morgan, 2.00 St. Joseph's Convent, 50.00: Trustees Central School, Barrie, 4.00:
W. Pierson, 12.00: Mrs. W. McKee, 5.00: Rev. D. D. McLeod, 12.00: W. J. Rose, 12.00:
W. Ready, 12.00: J. H. Bennett, 6.00 Major Boys, 5 00: Alex. Lame, 25.00:
S. Lount, 12.00: G.T.R. station agent, 2.00: J. G. Wilmott, 1.50: M. J. Hamline, 3.00:
W. Lochhead. Trav expenses, 32.65: J. Goodfellow: Services and expns inspecting, 50.00 364 15

Winter Fair, Guelph :—
J. M. Bond & Co: Hardware, 12 22: G. B. Morris: Hardware, 20.29:
Jas. Robertson Co: Castings etc, 5.04: C. Willson & Son: Stock scales, 44.50:
Dennis Wire & Iron Co: Poultry coops, 340.78: Sundry newspapers: Advertising, 25.20:
A. P. Westervelt: Prince of Wales prize, 50.00:
W. A. Mahoney: Contract additions and alterations, 6,284.00:
do : Lumber and carpentering, 39.66:
Guelph Light and Power Co.: Lighting appliances, 82.47:
E. A. Crawford: Clerk of works, 75.00 R. P. Fairbairn: Trav. expenses, 3.30:
Sundry newspapers: Advertising for tenders, 21.90 ..... 7,004 36

Provincial Live Stock Sales :—
Bryant Press: 10,000 catalogues, 425.00: Sundry newspapers: Advertising, 75.00 .. 500 00

Mustard spraying :—
M. W. Doherty: Travelling expenses and disbursements, 83.60: to pay assistant, 3.00:
do : Copper sulphate, 5.95:
McIntosh & Galbraith: Printing and stationery, 7.56: sundry newspapers, advtg., 12.00 112 11

Dr. H. Streit: Travelling expenses *re* bacteriological experiments at Toronto 12 80
F. C. Harrison: do do do 7 75
do do bitter milk, Innerkip cheese factory 6 00
A. McNeilage: Grant towards expenses lecturing and judging at Winter Fairs..... 200 00
J. Buchanan: Drafting diagrams for bulletin on peas and pea weevil 33 60
W. Lochhead: Travelling expenses *re* fruit experiments..... 52 20

AGRICULTURE.—*Continued.*

INCIDENTALS.—*Continued.*

W. B. Varley: Reporting annual meeting Association Fairs and Exhibitions		$15 00
W. R. Graham: Travelling expenses poultry investigation		61 96
J. B. Reynolds: do investigating farm machinery		3 30
W. Lochhead: do fumigating seed peas for Temiskaming Dist		3 65
Dairy Conference at Ottawa :—		
Travelling expenses, Robert Harcourt, 8.10: F. C. Harrison, 8.30: H. H. Dean, 5.70		22 10
G. C. Creelman: Travelling expenses *re* visit of Boer delegates		48 60
Doane Bros. Livery: Cab hire do do		28 75
		31,051 36
Less refund :—G. C. Creelman: Accountable warrant, collecting grain	9 27	
Agricultural Societies: Part services expert Judges	510 30	
		519 57
		30,531 79

SAN JOSE SCALE ($7,237.57)

Services as Inspector at 5.00 per day :—	
G. E. Fisher, 1,520.00: W. N. Hutt, 185.00	1,705 00
Services as Inspector at 3.00 per day :—P. W. Hodgetts, 15.00: C. F. Purdy, 11.00	26 00
do do 2.50 do J. F. Smith, 676.25: J. Healey, 336.25	1,012 50
do do 1.50 do E. W. Sovereign, 222.38: C. H. Culp, 103.75 ;	
W. Weir, 99.00 C. V. Taggart, 33.90: D'Arcy Freel, 2.25: W. Fellows, 6.75	473 03
T. D. Jarvis: Services preparing fumigation	19 66
Compensation for trees destroyed :—	
W. R. Mallory, 45.69: J. Gordon, 154.00: T. P. Warner, 42.47: T. Jenner, 15.66 :	
A. Armstrong, 18.22: J. D. Wigle, 27.13: J. McDougall, 69.89	373 06
Travelling expenses and disbursements :—	
G. E. Fisher, 610.24: Joseph Healey, 96.20 W. N. Hutt, 213.40 :	
P. W. Hodgetts, 91.50: J. F. Smith, 334.13: W. Weir, 92.36	
C. H. Culp, 78.95: E. W. Sovereign, 179.49	1,696 27
The Print Shop. Printing and stationery, 7.50: Griffin & Kidner: Printing and stat., 17.94	25 44
St. Catharines Journal: do 4.00: W. Lochhead: do 1.80	5 80
Warwick Bro's & Rutter: Printing, 7.95: L. K. Cameron: Stationery, 7.50	15 45
W. H. McCorkindale: Lime, 3.35: Jas. Robinson: Lime, 2.75	6 10
Chemicals :—Walker & Abbs, 75c: Dom. Drug Co, 354.01 :	
J. J. Ward, 14.70:	
J. de W. Randall, 4.99: Lyman Bros. Co., 60c	374 96
David Morton & Sons: Whale oil soap, 2,098.40: Coy Bros.: Tanners and whale oil, 29 65	2,128 05
Beaver Oil & Gas Co.: Crude oil, 301.11: J. W. Smith: Soap oil, etc., 1.22	302 33
Queen City Oil Co.: Oil, 5.71: Wood, Vallance & Co.: Hose, etc., 13.25	18 96
A. B. Noble: Hose, etc., 2.10: Chadwick Bros.: Castings, 3.60	5 70
E. Leitz: Microscope, 62.00: G. Stevenson: Pipe, etc., 4.49	66 49
J. S. Allen: Pipe, 1.18: J. H. Stewart: Pipe, 5.75: Spramotor Co.: Spraying mach , 35.00	41 93
G. E. Fisher: To pay freight charges on oil, sulphur, etc	256 41
Michigan Central Ry. Co.: Freight charges, 3.07: G. T. Railway: Freight charges, 5.07	8 14
L. E. & D. R. Railway: do 52c: H. G. & B. Railway: do 50c	1 02
Hamilton Radial Electric Ry. Co.: Freight charges, 25c: Am. Express Co.: Charges, 1.60	1 85
Can. Express Co.: Charges, 5.70: J. W. Smith: Teaming, 8.80	14 50
W. H. Easterbrook: Use of engine, 5.00: J. C. Secord: Use of engine, 6.00	11 00
Services and expenses on Commission :—	
Jas. Mills, 22.74: J. D. Dearness, 19.55: W. H. Bunting, 10.50	52 79
Township N. Grimsby: Proportion salaries of Inspectors	106 77
Sundry newspapers: Advertising	9 00
	8,758 21
Less sale of soap, oil and sulphur	1,520 64
	7,237 57

EXPERIMENTAL FRUIT STATIONS AND INSTITUTES, ($3,008.20).

L. Woolverton: Services as Secretary	200 00
do : Preparation of work on fruits of Ontario, 250.00: experimental work, 100.00	350 00
do : Travelling expenses	49 20
Services as Member Board of Control :—	
A. M. Smith, 6.00: A. H. Pettit, 12.00: W. M. Orr, 15.00: W. H. Bunting, 3.00	36 00
Travelling expenses as Members Board of Control :—	
A. M. Smith, 6.30: A. H. Pettit, 15.00: W. M. Orr, 22.36: W. H. Bunting, 5.10	48 76
Travelling expenses :—	
J. Mills, 12.80: L. Woolverton, 14.20: H. L. Hutt, 100.25: W. W. Hilborn, 12.00:	
A. W. Peart, 10.60: M. Pettit, 9 95: W. Lochhead, 10.00: E. B. Stevenson, 7.45:	
G. C. Caston, 12.60: W. H. Dempsey, 17.20: R. L. Huggard, 10.35	217 40

AGRICULTURE.—*Continued.*

EXPERIMENTAL FRUIT STATIONS AND INSTITUTES.—*Continued.*

Allowance as Experimenter:— W. W. Hilborn, 150.00: M. Pettit, 150.00.. A. W. Peart, 100.00: J. Mitchell, 100.00: A. E. Sherrington, 50.00: G. C. Caston, 150.00: R. L. Huggard, 75.00: H. Jones, 100.00: W. H. Dempsey, 150.00: E. B. Stevenson, 50.00: H. Spillett, 25.00 C. Young, 35.00	$1,135 00
H. L. Hutt: Allowance, inspecting stations, 100.00: Postmaster, postage stamps, 22.00..	122 00
Grimsby Independent: Pt'g and stat'ry, 3.75: F. C. McIlroy, photo album, 5.00	8 75
Grip Printing and Pub. Co: Drawing and engraving map of Ontario	10 00
Can. Express Co: Charges, 15.57: A. M. Smith, travelling expenses, 38.05	53 62
A. A. Plain: Travelling expenses	5 60
Ellwanger & Barry: Fruit trees, 23.50: E. M. Michell: zinc bags, 40c	23 90
Expansive Tree Protector Co: Tree bands, 42.90: Z. H. Harris: plants, 3.00	45 90
E. B. Stevenson: Plants, 12.41: P. Henderson Co: plants, 2.03	14 44
Orange, Judd Co: Books, 8.59: A. A. Plain: preparing catalogue of fruits, etc, 12.82..	21 41
A. W. Medcalfe: Negatives, 32.60: A. H. Baker: repairing camera, 50c	33 10
Sundry newspapers, advertising	71 20
Exhibit, Industrial Exhibition:— J. G. Mitchell: Fruit, 13.00: services, 4.00: expenses, 7.15 G. C. Caston: do 9.50: do 4.00: do 4.85 H. Jones: do 5.70: do 4.00: do 7.40 A. W. Peart: do 11.80: do 2.00: do 6.65 R. L. Huggard: do 8.40: do 4.00: do 1.50 A. E. Sherrington: do 5.00: do 4.00: do 1.70 M. Pettit: do 4.20: do 2.00: do 1.65 W. W. Hilborn: do 3.50: do 4.00: do 10.95 W. H. Dempsey: do 14.00: do 2.00: do 5.45 E. B. Stevenson do 6.00: do 5.25 W. M. Orr do 18.00: do 15.85	197 50
Services lecturing at Fruit Institutes:— G. C. Caston, 50.00: A. E. Sherrington, 18.75. W. H. Dempsey, 17.50: G. W. Carson, 12.00. H. Jones, 15.00: W. W. Hilborn, 27.50: W. N. Hutt, 15.00	155 75
Expenses of lecturers:— Elmer Lick, 26.90: A. McNeill, 43.50: G. Carlaw, 12.00: G. C. Caston, 69.35: A. E. Sherrington, 8.30: H. Jones, 34.37: A. J. Snelgrove, 6.00	200 42
A. S. Yarwood: Advertising, 4.75: rent of hall, 1.50	6 25
W. H. Dempsey: Rent of hall, 1.00: Bell Telephone Co, messages, 1.00	2 00

EASTERN DAIRY SCHOOL ($5,606.74).

J. W. Hart	Twelve months' salary as Superintendent					1,500 00
G. G. Publow	Services as Instructor in Cheesemaking at		95.00	per month		410 84
D. M. Wilson	do	Assistant do	25.00	do		86 67
L. A. Zufelt	do	Instructor in Milk-testing	80.00	do		293 34
J. Ireland	do	do Cheesemaking	55.00	do		201 67
F. McGowan	do	Assistant do	20.00	do		82 86
W. T. Connell, M.D..	do	Bacteriology	50.00	do		350 00
Jessie Gordon	do	Office Assistant	15.00	do		78 00
Thos. Perry	do	Engineer	35.00	do		149 92
D. A. Roe	do	Assistant Engineer	20.00	do		5 00
Alex. Ross	do	Caretaker	10.00	do		70 00
W. J. Carson	do	Assistant in Milk-testing				39 67
G. Ward	do	do Cheesemaking				11 33
R. Ireland	do	do Buttermaking				56 33
W. H. McColl	do	do do				11 30
L. Taylor	do	do do				19 20
J. Fitzpatrick	do	do do				8 67
E. McIntyre	do	do do				20 67
G. C. Creelman	do	Director				50 00
John Gleeson: Ice, 1.38: Water Works Department: 70.00						71 38
Kingston Light, Heat and Power Co: Light						47 17
Jas. Mallon: 2 tons 150 lbs screenings, 4.15: R. Crawford: screenings, 27.37						31 52
P. Walsh: 13 tons hard coal, 78.00: 22 tons slack, 88.00: screenings, 5.73						171 73
Booth & Co: 5 tons screenings, 11.75: 1 ton slack, 3.75: The Rathbun Co: lumber, 10.43						25 93
Apparatus, appliances, repairs etc:— Raney, Selby, & Co, 32.23: Jos. Jamieson, 35.80: C. Richardson & Co, 49.95: Robinson Bros, 5.20: J. W. Oldfin, 4.98: Dalton & Strange, 28.05: J. C. Mitchell, 7.25: Crown Boiler Compound Co, 8.04: W. F. Gondier, 2.50: McKelvey & Birch, 120.96: J. Corbett, .99: Carnovsky Co, 7.05: Wagnall Glass Works, 9.57: R. J. Lindsay, 21.18: Robinson & Co, .25: Rudd Harness Co, 1.00: J. Laidlaw & Son, .50: W. Snowden, 37.65: H. Wathen, 1.50: Can. Dairy Supply Co, .32						374 97

AGRICULTURE.—*Continued.*

EASTERN DAIRY SCHOOL.—*Continued.*

Dairy Supplies, etc :—
Oldrieve & Horn, 6.27 : Kilgour Bros, 16.98 : D. Derbyshire & Co, 25.40 :
Hansen's Laboratory, 3.90 : Creamery Package Mfg. Co, 48.50 : R. Carson, 4.30 :
J. Crawford, 10.50 : J. Laidlaw, 1.25 : Jas. Redden, 7.05 : R. A. Lister & Co 3.50 :
McKelvey & Birch, 9.96 : Queen City Oil Co, 6.01 : H. Skinner & Co, 9.03 :
Selby & Youlden, 3.35 : R. Waldron, 9.80 : A. P. Chown, .50 :
J. Gilbert, 6.07 : J. S. Henderson, .45 : Lennox & Lawrinson, 3 08 :
Firstbrook Box Co, 10.50 : W. J. Tapley, 55c : The Rathbun Co, 5.55.
H. B. Taylor, 2.60 : D. A. Weese, 2.40 E. C. Mitchell, 25c :
G. A. Mace & Co, 41.50 : Rochester Optical Co, 60c : O. G. Johnston, 93 :
J. R. C. Dobbs, 1.00 : Robertson, Nicoll & Co, 7.12 : J. McKay, 85c..... $239 20
Bell Telephone Co: Messages 1 60
Canadian Express Co: Charges, 6.48 : Dominion Express Co: Charges, 25c 6 73
C.P.R. Telegraph Co: Telegrams, 2.81 : G. T. Railway Co: Freight charges, 33.36.... 36 17
C. P. Railway Co: Freight charges, 2.09 : K. & P. Railway Co: Freight charges, 3.34.. 5 43
T. C. Wilson : Livery hire, 4.00 : A. McIlquham : Livery hire, 8.00..... 12 00
J. W. Hart: Travelling expenses, 34.40 : Collector Customs : Duty charges, 1.50..... 35 90
Noah White: Cartage, 1.00 : O. Taylor : Cartage, 1.10 : C. Chambers : Cartage, 25c 2 35
Postmaster: Postage stamps, 8c : Jno. Gilbert: Postage stamps, 30 10..... 30 18
H. F. Metcalf : Postage stamps, 4 00 : S. A. Hentig Postage stamps, 20.65 ..... 24 65
R. Uglow: Stationery, 28.00 : J. R. Coombs: Stationery, 20c..... 28 20
L. K. Cameron : Stationery 62
T. McAuley: Stationery, 1.50 : J. G. Foster & Co: Directory, 2.00..... 3 50
Books:—P. Blakeston's Sons & Co, 2 50. Eyre & Spottiswoode, 83c :
Philadelphia Book Co, 17.29 ..... 20 62
Sundry Persons: Milk supplied, 7,228.81 : Mrs. Dennis: Cleaning, 2.00..... 7,230 81
Alex. Ritchie: Membership fee Cheese Board 1 00
Advertising :—D. Derbyshire & Co, 10.00 *Sun* Printing Co, 6.50 :
Farmers' Advocate, 22.24 : *British Whig*, 2.50 : Hansen & Guild, 10.00 :
Kingston News, 60c..... 51 84
Board of Education: Rent of gymnasium building 60 00
Sundry Newspapers and periodicals: Subscriptions..... 47 26

$11,816 78

Less revenue :—

Sale of butter, 22,285 lbs @ 17c to 24$\frac{9}{10}$c	$4,967 08	
do cheese. 11,740½ lbs, 9c to 10c	1,130 62	
do skim milk.....	10 34	
Students' fees	102 00	
		6,210 04
		5,606 74

PIONEER FARM. ($2,151.90).

A. E. Annis: Twelve months' salary as Superintendent..... 480 00
Wages—labourers :—
Charles Silver, 133.42 : H. Hardy, 360.00 : A. Skene, 105.33 : W. Silver, 2.50 :
G. Wice, 9.50 : E. Roach, 8.25 : H. Silver, 3.25 : E. Wice, 2.00..... 624 25
Coates Bros : Threshing grain, 24.00 : G. Rodtha : Threshing grain, 4.00..... 28 00
E. Roach: Cutting grain, 57.20 : teaming, 8.00 ..... 65 20
J. Sharp: Hire of horse, 5.00 : W. Mooney : Hire of horse, 25.00..... 30 00
T. C. Brown: Services and disbursements shipping horses, implements and seeds..... 14 04
W. H. Smith: Team of horses, 325.00 : Isaac Vernon : Horse, 140.00 ..... 465 00
Steele-Briggs Seed Co: Seed grain, etc. 263.21 : A. L. Orvis: Chopping grain, 2.80..... 266 01
G. M. Youmans: Feed, 30.50 : J. Reed: Feed, 90 71..... 121 21
W. McMillan. Lumber, 34.90 : Mrs. Smith: Wall-paper, 1.83 ..... 36 73
Supplies :—
J. E. Gibson, 136.24 : Cassidy & Son, 96.96 : G. M. Yeomans, 49.15 :
M. C. Cassidy, 22.36 : Mrs. E. Humphreys, 82.02 : E. Roach, 3.50 .. 390 23
Max Schellenburg : Harness, etc, 17.05 : painting, papering, etc, 33.75 ..... 50 80
Massey-Harris Co: Implements, 89.25 : Frost & Wood : Repairs to implements, 3.78..... 93 03
S. B. Black: Hardware. tools, etc, 17.40 : W. M. Skene. Saw, 2.00..... 19 40
W. Chase: Vise and work-bench, 1.50 : J. McFadyell: Hay rack, etc, 8.50 ..... 10 00
J. Rhodes : Blacksmithing, 47.15 : binder twine, 14.00..... 61 15
A. E. Annis: To pay express, 25c : medicine, 1.65 : sundries, 1.00..... 2 90
J. Dawkins : Meat, 88c : J. Read: Meat, 22.85 : C. P. Railway: Freight charges, 78.33 ... 103 06
W. B. Varley: To pay express charges..... 1 25

2,861 26

Less revenue :—

Sale of butter and milk.....	140 16	
do grain and hay.....	47 30	
do vegetables.	207 15	
do live stock.....	289 00	
Service of animals.....	25 00	
Miscellaneous	75	
		709 36
		2,151 90

AGRICULTURE.—*Continued.*

WESTERN DAIRY SCHOOL ($3,111.85).

Arch. Smith	Services as	Superintendant, 135.00 per month	$540 00
Geo. E. Goodhand	do	Instructor in Cheesemaking, 75.00 per month	262 50
Frank Herns	do	do Milk-testing, 50.00 per month	200 00
Bella Miller	do	do Home Dairy, 40.00 per month	120 00
Jas. Bristow	do	Assistant Separators, 50 00 per month	175 00
R. M. Smith	do	do Butter making, 50.00 per month	200 00
F. H. Herns	do	Secretary, 12.00 per month	47 00
J. A. McIntyre	do	Engineer, 30.00 per month	105 00
T. D. Barry	do	do 40.00 per month	27 70
R. M. Smith	do	Assistant Butter Making, 1901	21 00
J. A. McIntyre	do	Instructor Home Dairy	29 20
J. P. Whitehead, V.S.	do	Lecturing	10 00
G. C. Creelman	do	Director	50 00
C. F. New, M.D	do	Bacteriologist	40 00

R. Reed 12 tons 1,630 lbs. coal at 4.75 per ton., 60.87: 11½ cords wood at 2.60, 29.90 ..... 90 77
D. D. Walker: 10½ cords wood at 3.75. 39.37: Pincombe & Donaldson: Ice, 2.70 ..... 42 07
Dairy Supplies :—
C. H. Slawson & Co, 90.29: Ballantyne Dairy Supply Co, 4.51: London Box Co, 20.00:
C. Richardson & Co, 2.85: Vermont Farm Machine Co, 4.00: Isaac Wenger, 27.00:
Can. Dairy Supply Co, 5.75: W. H. Stepler, 2.30 Geo. E. Rason & Co, 2 65:
Scott & Gillies, 13.60 A. F. McLaren Cheese Co, 6.00: D. Graham, 3.45:
W. E. Saunders & Co, 9 27 ..... 191 67
Apparatus, appliances, repairs, etc :—
C. Richardson & Co, 16.52: Creamery Package Mfg Co, 1.75:
Wm. Stevely & Son, 1.50: Jas. Wright & Son, 167.70: A. E. Hare, 13.50:
Chas. Lentz & Son, 91.70: D. M Macpherson, 8.00: E. W. Ray, 3.50:
J. Robertson, 21.12 R. Myrick, 1.00 E. Statham & Son, 5 55.
R. Whitelaw, 5.85: Ballantyne Dairy Supply Co, 44.90: F. S. Harrison & Son, 9.80:
Electric Boiler Compound Co, 15 00: Darch & Hunter, 1.64 Geo. McBeth, 81.09:
Chandler & Massey, 84.00: H. Scott, 8.00 ..... 582 12
Domestic Science :—
Mrs. E. M. Torrance, services as Instructor, 17.50: Expenses, 7.00 Supplies:
A. E. Lee, 0.20: Jas. Cox, 1.52: D. Graham, 6.27: Mrs. E. M. Torrance, 1.40:
F. Harvey, 2.06 ..... 35 95
Harry C. Brittain: Clocks, 6.15: S. S. Glass: Books, 2.60. ..... 8 75
Farmers' Advocate: Books, 4.00: Lehmann & Newman: Books, 5.00 ..... 9 00
Travelling expenses:
J. C. Snell, 1.00 H. White, 5.00: J. Clarkson, 6.50: J. Fowler, 8.50:
P. M. Foote, 7.00: J. S. Pearce, 1.50 C. W. Brennan, 4.00: G. E. Day, 6.70:
C. F. Ness, M.D., 15.00: B. Maddock, 8 25 J. B. Muir, 3.00 ..... 66 45
Printing and Stationery :—
Strathroy *Age*, 29.60: Strathroy *Dispatch*, 12.80: Geo. Emall & Son, 12.25:
G. M. Haldane, 13.45: J. D. Meekison, 85c 68 95
C. W. Mack Stamp, 48c: T. W. Kidner Postage stamps, 10.00 ..... 10 48
H. McColl: Postage stamps and rent of box, 11.00: Jas Torrance: Postage stamps,15.00: 26 00
J. D. Meekison: Telegrams, 50c: Bell Telephone Co Removing phone & messages, 5.90: 6 40
W. H. Stepler: Express charges, 12.85: A. McLennan: Express charges, 5.02..... 17 87
G. T. Railway Co: Freight charges, 19.14. W. H. Murray: Duty charges, 4.05.. . . 23 19
H. Butler: Cartage, 55c: T. Le Galle: Cartage, 5.40..... 5 95
P. Fitzpatrick: Livery hire, 1.75 J. Murdock: Washing towels, 5.68..... 7 43
Jno. Heard: Sanitary tax..... 70
Advertising :—
Western Dairymen's Association, 20.00: *Strathroy Age*, 8.00:
Strathroy Dispatch, 17.40: *Farming World*, 4.20: *Farmers' Advocate*, 47.25:
Sun Printing Co, 12.60 ..... 109 45
Sundry newspapers and periodicals Subscriptions 10 25
3,140 85
Less revenue from Students fees..... 29 00

BUREAU OF INDUSTRIES ($3,149.02). 3,111 85

Services tabulating Municipal statistics at 2.50 per day :—
M. J. Malone, 710.00. F. L. Farewell, 300.00: J. W. Brant, 417.50: 1,427 50
Services tabulating Agricultural statistics at 2.00 per day :—
F. L. Farewell, 12.00: P. R. McCulloch, 48.00: J. Blue, 48.00 H. S. Smith, 48 00:
G. D. Aird, 48.00: H. J. Williamson, 72.00 W. M. Flumerfelt, 48.00:
E. U. Dickenson, 34.00: H. T. Hunter, 14.00: J. G. McLeod, 58.00. 430 00
Services addressing and mailing circulars, bulletins etc, at 2.00 per day :—
J. C. Ross, 44.00: F. Rightmeyer, 93.87: C. J. Wilson, 46.00. 183 87
Phillips Thompson: Services preparation of bulletins at 3.00 per day..... 15 00
W. A. Stuart: Climatic work, 50.00: Warwick Bros. & Rutter, p'tg, & b'dg rpts, 283.74. 333 74
Warwick Bros. & Rutter: Printing circulars, forms, lettering etc 227 72
Riordon Paper Mills Paper, 31.18: L. K. Cameron: Paper, 132.90: stationery, 107.20.. 271 28
Kilgour Bros Fyling boxes 50 00
Can. Agriculturist Annual: 1,200 copies for distribution to correspondents 100 00
Elliott & Co: ddressing machine, 70.00: stencils and frames, 26.71..... 96 71
C. W. Irwin: Duty, express and brokerage, 10.20: W. Briggs: Municipal year book, 3.00. 13 20

AGRICULTURE.—*Continued.*

COLD STORAGE ($955.19).

Rittenhouse Cold Storage Co: Beamsville, grant toward construction of building		$140 00
Wheeler Cold Storage Co: Chatham, do do		500 00
J. B. Reynolds: Travelling expenses and disbursements, inspecting, 180 38	bal, 1901, 11.11	191 49
J. F. Hanrahan: Services inspecting, 50.00: travelling expenses, 28.70		78 70
J. F. Hanrahan: Plans for sundry persons		45 00

AGRICULTURAL COLLEGE.

Salaries ($29,230.08).

James Mills	Twelve months'	salary as President	2,000 00
H. H Dean	do	Prof. of Dairying	1,500 00
J.H.Reed	do	do Veterinary Science	1,000 00
J. B. Reynolds	do	do English and Physics	1,499 98
W. Lochhead	do	do Biology	1,499 98
G. E. Day	do	do Agriculture	1,499 98
H. L. Hutt	do	do Horticulture	1,400 00
F. C. Harrison	do	do Bacteriology	1,400 00
Robert Harcourt	do	do Chemistry	1,400 00
W. P. Gamble	do	Assistant in Chemistry	1,000 00
M. W. Doherty	do	do Biology	1,000 00
A. Henderson	Three and one-half months'	salary as Assistant in Biology	175 00
H. Streit	Twelve months'	salary as Assistant in Bacteriology	539 98
M. Cumming	do	do Agriculture	749 99
W. J. Rutherford	do	Resident Master	600 00
A. G. Rowsome	do	Librarian and Languages	500 00
W. Clark	do	Drill Instructor	300 00
T. Jarvis	do	Assistant in Biology	390 01
B S. Pickett	do	Tutor and Secretary	722 04
A. Hallett	do	Stenographer	338 03
F. K. Dougherty	do	Departmental Stenographer	225 00
S. Springer	Nine do	Bursar	750 01
Mrs.Sarah Craig	Twelve do	Matron	500 01
W. O. Stewart	do	Physician	400 00
R. W. Green	do	Engineer	800 00
J. Anderson	do	Stoker	403 00
W. T. Bishop	do	do	403 00
John Squirrell	do	Night Watchman	354 00
Jas. McGinn	Two do	Messenger	52 00
Felix McGinn	Ten do	do	280 00
Jno. Hohenadel	Nine do	Janitor	291 00
J. Teven	Three do	do	99 00
J. A. Black	Twelve do	Sewage Caretaker	405 50
W. C. Good	do	Assistant in Chemistry	900 00
W. Squirrell	Three do	Acting Bursar	145 00
W. R. Graham	Twelve do	Manager and Instructor Poultry Dept.	1,000 00
G. McCalla	do	Assistant in Physics	400 00
Pay lists	Wages laundresses, cooks and other servants		2,247 57

Expenses ($6,823.06).

Albright, W. D : Scholarship, 10.00 :	Alumni Asso. Toronto University : Advg, 40.00	50 00
Anderson, C. Co : Stationery, etc. 28.24 :	*Acta Victoriana* : Advtg, 7.00	35 24
Am. Pomological Socy : Books, 18 00 :	Am. Chemical Socy : Annual dues, 5.10	23 10
Am. Entomological Co: Labt'y supplies, 40.85:	Bond, J. M. & Co: Iron, hardw'e, etc, 16.33	57 18
Bell, W. J : Lectures and expenses, 13.50 :	Book Supply Co : Books, 100.16	113 66
Brethour, J. E : Assistance with short course, 9.00 :	trav. expenses, 6.95	15 95
Baldwin, L. H. Lectures on poultry, 12.00 :	eggs, 6 24 : trav. expenses, 2.50	20 74
Briggs, Wm : Books, 378.71 : Britnell, Albert : Books, 10.13		388 84
Burgess & Son : Lantern Slides, 14.05 :	Buchanan, J : Serv as draughtsman. 30.50	44 55
Bell Telephone Co : Messages, 69.10 :	Bursar : To pay sundries, 59 89	128 99
Cosh, Newton: Lectures and expenses, 10 35 :	Cameron, L. K : Stationery, 10.00	20 35
Can. Year Book : Advtg, 75.00 :	Cooper, E. E : Advtg, 15.00	90 00
Creelman Bros. Co : Typewriters, 2, 186.00	supplies, 59.39	245 39
Chandler & Massey : Surgical appliances, 60.74 :	Clemens, H. A. & Co : Lumber, 10.10	70 84
Cumming, M : Board allowance. 33.00 :	Carmichael, Jas : Horse, 175.00	208 00
Can. Historical Co : Books, 15.00 :	Collector of Customs : Duty charges, 142.19	157 19
Clemens, G. W : Assistance with short course, 9.00 :	trav. expenses, 5.00	14 00
C. P. Railway Co : Freight charges, 12.36 :	C. P. R. Tel. Co : Telegrams, 15 54	27 90
Can. Express Co : Charges. 51.86 :	Can. Bank of Commerce, draft charges, 8.58	60 44
Dairy School : Butter, 10,471 lbs. 2,134.12 :	cheese, 492 lbs, 48.18	2,182 30
Dougall, John & Son : Books, 7.93 :	Daily, J : Stationery, 15.78	23 71

AGRICULTURE.—*Continued.*

AGRICULTURAL COLLEGE.—*Continued.*

EXPENSES.—*Continued.*

Day, T. J: Stationery, 117.01; blank book, 1.50; subscription, 4.00. .... $122 51
Dusty, Jas. D: Fruit, 6.00; Davidson, John: Repg. chairs, 6.75 .... 12 75
Dickenson, C. W. & Co: Stationery, 5.00; Davidson, Wm. V.S: Prof. services, 15.50 20 50
Day, G. E: Accountable, exp of self and students to Live Stock Fair, Chicago, 140.00; trav. expenses *re* stock judging, 16.00 .... 156 00
Dept. of Physics: Experimental appl'es, 11.00; Dewar, W. R: Scholarship, 10.00 .... 21 00
DeLong, H. M: Ser in Bursar's office, 117.33; Davidson, A. A Serv in Bursar's office, 232.50 349 83
Dom. Express Co Charges, 19.51 Eimer & Amend: Supplies for labt'y, 518.83.. 538 34
Empire Soap Co, Laundry Soap, 2,302 lbs, 106.19; potash, 5.00 sundries, 1.84..... 113 03
Educational Pub. Co: Advertising, 19.60 Fielding & McLaren Tea 296 lbs, 70.00 .. 89 60
Frew, E: Services in library, 44.00; Fields, R bt Cab hire, 13.00..... 57 00
Fulmer, H. L. Scholarship, 10.00; *Farming World*: Advtg, 20.82... ..... 30 82
Farmer's Advocate: Advertising, 143.40; Graham & Co: Advtg, 16.88..... ..... 160 28
Goold, Shapley & Muir & Co: Supplies, 14.45; Grand & Foy: Stationery, 10 31 ..... 24 76
Guelph Light and Power Co: Light, 64.36 Guelph Pavement Co: pave't, 1191 ft, 142.92 207 28
Guelph Cartage Co: Cartage, 11 27; G. N. W. Tel. Co: Telegrams, 26.18..... .. 37 45
G. T. Railway Co: Freight charges, 66.43; Greenshields, W. J: Bottles, etc, 6.00.... 72 43
Globe Ptg. Co: Advtg, 42.06; Gummer, H: Advtg, 6.80; subscription, 6.00..... 54 86
Hales A: Meat, 934.89; pigeons, 25, 3.75 ... . 938 64
Humphries, R. W: Tea, 260 lbs, 64.00; Hauser, H. W. Scholarship, 10.00 ..... 74 00
Hohenadel: Laboratory supplies, 8.35; services, 33.00 .. .. 41 35
Holeson, Wm.: Pigs, 2, 6.00; Hoodless, Mrs. A.: Trav exps *re* Macdonald bldg, etc, 38.75. 44 75
Books: Heath, D. C. & Co, 2.38; Hagerup, H., 2.65; Hammett, J. L. Co., 2.25; Houser, H. W, 20 00 Huard, V. A., 51.00 .... 78 28
Hurndall, F.: Photos and photo supplies, 40 80; Hadden, James C.: Cab hire, 14.75.... 55 55
Hutt, H. L: Trav expenses *re* plant breeding 36 55
Harrison, F. C.: Exps attending meeting at Chicago, 33.85; trav expenses, 26 00 ..... 59 85
Harcourt, Robert Exps attending meeting at Washington, 51.00; trav exps, 13.95.... . 64 95
Jackson, John: Exps *re* stock judging, 8.15; Kronse, F. W.: Honey, 9.00..... 17 15
Kerr, A. & Son: Turkeys, 507 lbs, 55.77; geese, 200 lbs, 14 00..... .... 69 77
Kilgour Bros: Envelopes, 3.00; bags, 2 20 .... 5 20
Lochhead, W.: Exps attending meeting Entomological Socy, 38.45; trav expenses, 12.65. 51 10
Library Bureau: Fyling cases, etc, 86.26: office furniture, 134.20 .... 220 46
Lowdermilk, W. H. & Co: Books 10 40
Mitchell, Robert: Chocolate, 20 lbs, 6.00; evap peaches, 50 lbs, 6.25; salt, 2 bbls, 2 30; mustard, 29 jars, 21.75; granite cups, 28 50; cheese, 4,299 lbs. 397.30; butter, 105 lbs, 16.80; vinegar, 81 gals, 30.67; sugar, 14,991 lbs, 661.86; biscuits, 193.19; coffee, 507 lbs, 127.05; tapioca, 450 lbs, 20 28; rice, 475 lbs, 19.60; rolled oats, 21 bags, 60 75; brooms, 12 doz, 27.00; fish, 1,773 lbs, 146.90; currants, 140 lbs, 9.11; corn starch, 31 doz, 23.25; flour, 4,400 lbs, 79 20; salmon, 57 doz, 79 80; corn, tomatoes, etc, 49 doz cans, 42 93; pumpkin, 5 doz cans, 5.00; lard, 550 lbs, 75.50; butter, 150 lbs, 25 00; beans, 5 bu, 8.75; prunes, 725 lbs, 43.50; pickles, 15 gals, 8.25; gelatine, 31 lbs, 27 90; rld wheat, 7 bbls, 19.25; sundries, 258.61; raisins, 476 lbs, 43.40; wash soda, 1.125 lbs, 14.07; evap apples, 125 lbs, 14.13; baking powder, 10 doz, 17 50; oranges, 40 doz, 12.40; syrup, 66 gals, 54.21; cocoanut, 5 doz, 3.00; soap, 2,040 lbs, 66.30; cocoa, 14 doz, 17.50; eggs, 1,124 doz, 171.72; sardines, 6 doz, 12.00; toilet soap, 16.65; cranberries, 2 bbls, 21.50 .... 2,936 63
Mills, J. Edgar: Services Acting Bursar, 42.00; trav expenses, 3.75 ..... 45 75
Mills, James: Trav exps, 83.37; Maddock, P. F.: Drugs and chem, 7.15 .... .. 90 52
Mail and Empire Advg, 14 85; Montreal *Star*: Dictionary, 5 00 ..... 19 85
Mahony Bros. Sink, etc, 5.15; Map and School Supply Co: Labty supplies, 25 20 ..... 30 35
Mercantile Fire Insurance Co: Insurance on house and stables 13 00
Milligan, W G: Assistant in Library, 87 50: Millard, Clara: Book, 6.90 ..... 94 40
Morris, G. B.: Iron, hardware, etc, 54 76; Morang, G. N.: Books, 6 00..... 60 76
Mackinnon, D J. & Sons: Plums, 4 00; McIntosh & Galbraith: Ptg and advtg, 518.55 . 522 55
McCrea, J. A.: Eggs, 305 doz, 46.20; sugar, 3,123 lbs, 145.72; cranberries, 1 bbl, 9.00; rolled oats, 4 bbls, 14.40; lard, 200 lbs, 24.75; rice, 150 lbs, 5.65; tapioca, 150 lbs, 7.50; coffee, 142 lbs, 42 60; prunes, 500 lbs, 33 50; baking powder, 4 doz, 7 00. trout, 1,364 lbs, 128.51; flour, 1,400 lbs, 23.10; currants, 90 lbs, 8.10: biscuits 36.50; mustard, 8 jars, 5.60; corn starch, 12 doz, 7.20; salmon, 21 doz cans, 31.35; tomatoes, 11 doz cans, 11.00; brooms, 3 doz, 7 50; haddie, 180 lbs, 14.40; turkey, 258 lbs, 27.57; ducks, 1.50; icing sugar, 105 lbs, 7.35; oranges and lemons, 21.10; red wheat, 3 bbls, 8.25; chocolate, 2 doz, 2 40; sardines, 2 doz. 4 60; matches, 1 case, 5.00; raisins, 224 lbs, 15 68; soap, 360 lbs., 15.30; blueing, 12 lbs., 2.40; syrup, 20 gals, 8.40; beans, 3 bu., 5.25; salt, 1 doz. bags, 3 00; vinegar, 32 gals., 11 20; sundries, 65.24; corn, 3 doz. cans, 3.00; soap, 4 25; pumpkin, 2 doz., 2.00; evap. apples, 250 lbs., 26.25 .... 848 72
McLean, J. A. Produce Co: Ham and beef, 51 lb, 8.34; cutting machine, 5.00..... 13 34
McCallum, J. M: Money stolen from drawer in Bursar's office.... ... . 15 00
McHardy, J. & A.: Sausage, 1,462 lbs., 181 05: hams, 486 lbs., 72.90: sundries, 12.25..... 266 20
McGinn, Felix: Car fare carrying mail, 7.50: McCallum, J. M: Scholarship, 10.00 .... 17 50

AGRICULTURE.—*Continued.*

AGRICULTURAL COLLEGE.—*Continued.*

EXPENSES.—*Continued.*

McGinn, James: Assistance *re* short course, 16.00· car fare, 4.25.. ..... $20 25
McKillican, W. C.: Scholarship, 10.00: McCallum, W. B.: Lantern slides, 40.00 ..... 50 00
Nelles, C. L.: Letter press, 5.00: stationery, 18.62: mag. glasses, 2 doz., 4.80 ..... 28 42
Nunan, F.: Blank books, etc., 16.50· cheque books, 28.00 ..... 44 50
Office Specialty Mfg. Co: Book cases, 3, 31.50· fyling cases, 223.12 ..... 254 62
Ohlman, Geo. T· Postage stamps, 61.00: O. A. C. Review: Advertising, 20.00..... 81 00
Ontario Pub'ng Co: Directory, 5 00: subscription, 7.75 ..... 12 75
O'Donell, M: Carpentering, 29.57: O'Brien, M· filling ice house, 14.25 ..... 43 82
Parkinson, E: Damages to imported ewe borrowed for use of short course students 25 00
Poultry Dept: Poultry, 61.10 eggs, 93.91 ..... 155 01
Pretsell, Jas: Assistance *re* short course, 25.00: Postmaster: Postage stamps, 106.00 ... 131 00
Potter, Chas: Laboratory supplies, 23.05: Pearce, S. M· Scholarship, 10.00..... 33 05
Pringle, G. D: Laboratory supplies, 12.85: Palmer, E: Cab hire, 8.00 ..... 20 85
Putnam, G. A: Services Bursar's office, 10.00· trav. expenses, 2.70 ..... 12 70
Queen & Co· Laboratory supplies, 6.50: Rumford, A: Iron, tinware, etc., 9.85..... 16 35
Rowsome, H. R: Lectures on Apiculture, 200: honey, 228 lbs., 20.52 ..... 220 52
Rolph, Smith & Co: Lithographing, 55.00: Ryan, G. B. & Co: Furnishings, 12.20..... 67 20
Reed, F. H: Scholarship, 10.00: Reynolds, J. B: trav. expenses, 8.95. ..... 18 95
Reed, J. H· Expenses *re* short course, 2.00: printing, 25.00 ..... 27 00
Star Library Club: Books, 30.00: Spanner, O. & Co: Moose head, 12.00..... 42 00
Sun Printing Co: Advertising, 26.88· sub. 1.00 ..... 27 88
Stewart, Robt: Lumber, 43.36 Simpson, R: Honey, 300 lbs., 27.00. ..... 70 36
Scroggie Bros: Washing soda, 375 lbs , 6.66· eggs, 6 doz., .90: sundries, 1.45 ..... 9 01
Smith, W. Harland: Surrey, 100 00: Sheppard Ptg. Co· Advertising, 101.50 ..... 201 50
Seaman, Jas: Insect cases, 70, 77.50 Stewart, Alex: Drugs and Chemicals, 47.81..... 125 31
Supply Dept. Marine Biological Lab'y: Laboratory supplies 47 80
Stechert. G. E.· Books, 901.24: Smith, W.H.: Iron, tinware, etc., 6.35. ..... 907 59
Sharp, J.: Book fyles, 4.00· Standard Vinegar Co: Vinegar, 83 gals., 23.51 ..... 27 51
Smith, A. W.: Assistance *re* short course, 9.00: trav. expenses, 8.50..... 17 50
Snell, J. C.: Assistance *re* short course, 4.00: trav. expenses, 5.00 ..... 9 00
Sundry persons· Members of Advisory Board, expenses, 35.80· time allowance, 36.00..... 71 80
Treas. Board of School Trustees—assessment of college property for school purposes..... 50 40
Trinity University· Advtg., 8.00: Torontonensis: Advtg., 25.00..... 33 00
Tyson, A. W.: Meat, 3,053 97: Turnbull-Wright Co: Staty. ptg., etc., 76.89 ..... 3,130 86
Tytler, Wm.: Services as examiner, 10 00.. "Varsity": Advertising, 15.00 ..... 25 00
Virtue & Co· Books, 45.50· Wiley, Jno. & Sons· Books, 9.04..... 54 54
Williams, Geo.: Bread and biscuits, 1,181.60: groceries, fruit, etc. 104.33: ice cream, 8 qts., 6.00· luncheon for Gov. General and party, 85.00..... 1,376 93
Whyte Packing Co: Bacon and hams, 7,975 lbs 1,052 59
Walther, W: Laboratory supplies 48 83
Waters Bros.: Picture frames, etc., 5.46· drawing utensils, 37.50: laby. supplies, 13.62.. 56 58
Woodyatt, A.R. & Co. Iron, hardware, etc., 6 60: Walker, M.E.: Postage stamps, 141.50 148 10
Warwick Bros. & Rutter: Cheque book, ledger, etc 25 70
Wilson, W. J. & Co: Honey, 240 lbs 24 00
Sundry persons: Accounts unenumerated under 10.00 ..... 131 08

21,767 24

Less Revenue :—
Students' fees, 4,146.15 ; board of students, 10,252.34 ; supplemental examinations, 60.00: Sale of tuberculine, 6 50 : Sale of old horse, 25.00· Sale of old buggy, 15.00: Rent of post office boxes, 70.25: Fines and breakages, 262.59: Rent of houses, 86.00: Incidentals, 20.35..... 14,944 18

6,823 06

EXPERIMENTÁL FARM AND FEEDING.

SALARIES ($3,774.07.)

M. Cumming.....Eleven and one-half months' salary as Assistant in Agriculture..... 95 85
M. D. Geddes.....Six and one-half do Foreman..... 325 00
D. Douglas.....Five and one-half do do 246 49
A. McIlwraith.....Twelve do Cattleman 404 00
D. Douglas.....Six and one-half do do 217 00
A. Milne. .....Twelve do Laborer..... 380 35
R. Marshall ..... do do 381 00
J. Douglas..... do Experimental feeder..... 376 00
Pay lists ....Wages farm laborers, students, etc..... 1,348 38

AGRICULTURE.—*Continued.*

EXPERIMENTAL FARM AND FEEDING.—*Continued.*

EXPENSES. ($2,420.09).

Aitcheson, Andrew: Team horses, 450.00; Arkell, Henry: Expenses *re* stock, 6.00 ..... $456 00
Bond, J. M. & Co: Hardware sundries, 16.45; Barber, A: Steers, 25, 1,266.11 .... 1,282 56
Barber, W. F: Pigs, 31, 107.50; steer, 30.00 ..... 137 50
Beattie, Geo: Harness repairs and supplies, 68.70; Barbaree, D: Lumber, 1,034 ft, 12.00 .. 80 70
Brethour, J. E: Farrowing crate, 5.00; Barclay, Jas: Barley, 115 bush, 46.02 ..... 51 02
Carter, Wm: Barley, 506 bush, 279.00; Oats, 200 bush, 92.00 ..... 371 00
Clemens, H. A. & Co: Lumber, 112.29; Cornie, T. A: Painting, graining, etc, 18.50.... 130 79
Creelman Bros. Co: Part cost of typewriter, 11.00; repairs, etc, 2.68.... ..... 13 68
C. P. Railway Co: Charges, 12.87; Canadian Express Co: Charges, 3.30 .. 16 17
Collector of Customs: Duty charges, 3.30; Dairy Dept: Milk, 75.63 ..... 78 93
Dickson, J. R: Hogs, 16, 47.00; skim milk, 37 54 ..... 84 54
Davis, C. G. & Co: Fence wire, 20.25; Dougherty, F. K: Services as stenographer, 4.69 . 24 94
Day, T. J: Stationery, 4.48; Day, G. E: Expenses *re* purchase of stock, 20.28; trav. expenses attending meeting at Chicago, 31 85 ..... 56 61
Edwards, W. C. & Co: Hereford bull, 614.60; ram, 35 00; paid W. J. Barnett *re* expenses buying stock in England, 64.78. ..... 714 38
Goldie, Jas & Co: Bran, 12 tons, 209.50; middlings, 20½ tons, 429.80; ch wheat, 400 lbs, 5.60 644 90
Guelph Linseed Oil Co: Oil cake, 3½ tons, 97.35; Gordon, D: Skim milk, 28.74 ..... 126 09
Green, Albert: Repairing heating apparatus, 16.50; Grant, Thos. F: Pump, 12.00 ..... 28 50
Guelph Pavement Co: Pavement, 859 ft, 85.95; troughs, 24, 60.00..... ..... 145 95
Gardhouse, J. M: Shorthorn cow, 510 G. T. Railway Co: Charges, 30 81 ..... 540 81
Guelph Light & Power Co: Wiring live stock class room 33 82
Hodgson, F. W: Ayrshire bull. 100 00
Howitt, Jas: Mixed grain, 210 bush, 84.20; sand, 3.00..... ..... 87 20
Hewer, Jas: Rock salt, 7.50; seeds, etc, 6.34 ..... 13 84
Kennedy, John: Lime, stone, etc, 11 11; Laidlaw, Jas: Pigs, 24, 120.00 ..... 131 11
Laird, G. & R: Pigs, 12, 47.00; London Fence Machine Co: Wire, 879 lbs, 25.47 ... 72 47
Milne, Alex: Yorkshire pigs, 10 ..... 40 00
Massey-Harris Co: Farm implements and repairs.... ..... 118 41
Morris, G. B: Iron, hardware and repairs, 193.61; binder twine, 48 80 ..... 242 41
Maxwell, D. & Sons: Hay loader and rake, 90.00; McCuen Bros: Steers, 6, 203.30 ... 293 30
McArthur, G. F: Seed, 2.75; barley, 217 bu, 112.00; corn, 73 bu, 50.30 ..... 165 05
McQuillan, A: Steers, 2, 78.00; McIntosh, Jas: Hogs, 60, 196.00 ..... 274 00
McLeod, D: Wheat, 87 bu, 59.02; McCrae, D: Expenses *re* stock, 103.00..... 162 02
McDougall, C: Barley, 247 bu, 138.52. corn, buying grain, 1.25 ..... 139 77
McIntosh & Galbraith: Envelopes, letter heads, etc 10 50
Ontario Seed & Separator Co: Mill and bagger 23 00
Office Specialty Mfg. Co: Book case, etc, 11.44; Occomore, H: Smoke stack, 10.00. . 21 44
O'Donell, M: Carpentering, 126.50; O'Brien, M: Packing ice, 7.50 ..... 134 00
Presant, E. J: Chopping feed, 32.05; barley meal, 14.43.. ..... 46 48
Penfold, S. & G: Repg, vehicles, 3.10; knives for ensilage cutter, 5.85 ..... 8 95
Postmaster: Postage stamps, 21.00; Queen City Oil Co: Seal oil, 10 gals, 6.10 ..... 27 10
Registration of Stock Am, Oxford Down Record Assn, 1.00; Holstein-Friesian Assn: 1.75; Harding, Geo: 1.00; Park, R. W: 3.06; Thomas, C. R: 12.91; Temple, A. J: Secy, 13.10; Wade, Henry: 9.50.... ..... 42 32
Rennie, Wm: Seeds, etc, 130.00. Rudd, S. N: Tinware, etc, 10.80. ..... 140 80
Reid & Ross: Blacksmithing, 8.50; Rankin, J: Shorthorn bull, 315.00..... ..... 323 50
Ryan, G. B. & Co: Furnishings, 1.90; ticking, 63 yds, 9.77.. ..... 11 67
Reid, Wm: Fence posts, 64, 12.80; Robertson, The Jas. Co Valves, etc, 6.69..... 19 49
Reed, J. H., V.S: Pro services and medicines, 29.20; Stewart, Alex: Drugs & chemicals, 25.38 54 58
Stewart, Robert: Lumber, 77.75; Sunley, Wm: Iron, tinware, etc, 6.25.... ..... 84 00
Swayze, R. W: Plow, 45.00 Sallows, H. & D: Blacksmithing and horseshoeing, 73.68.. 118 68
Smith, W. H: Charcoal, 3½ bu, 1.38; repairs, 13.75 ..... 15 13
Thorp, Geo. J: Seeds, etc, 66.37; Telford, L: Oats, 47 bu, 14.18 ..... 80 55
Teasdale, Thos: Berkshire pigs, 2, 60.00; berkshire boar, 25.00 ..... 85 00
Tolton, Bros: Repg farm implements, etc, 34.20; Turnbull Wright Co: Printing, etc, 11.00. 45 20
Whitelaw, A. W: Expenses *re* stock, 10.00 Wilson, C. & Son: Scales, 20.00 ..... 30 00
Wharton, H: Pigs, 20, 60.00; Walker, R: Barley, 53 bu, 21.82..... ... 81 82
Sundry persons: Accounts unenumerated under 10.00 ..... 44 01

8,306 69

Less Revenue :—
From sale of—27 steers, 1,460.58; 4 calves, 137.00; 4 bulls, 393.50; 5 heifers, 195.00; 17,222 lbs, fat cattle, 1,033.17; 137 pigs, 1,607,86; 1 lot pigs, 384.43; 23 sheep, 124.50; ram, 10.00; horse, 65.00; balance on team, 5.00; vetches, 5.00; 400 bags potatoes, 199.75; barley, 10.20; 274 lbs wool, 19.18; hides and skins, 4.95; old iron, 4.00; 2,211 qts, milk, 88.48; ensilage, 2 tons, 5.00; service of animals, 134.00. 5,886 60

2,420 09

AGRICULTURE.—*Continued*

EXPERIMENTAL PLOTS.

SALARIES ($5,713.78).

C. A. Zavitz.....Twelve	months' salary as	Experimentalist	1,500 00
A. E. Whiteside ...	do	Foreman	499 99
W. J. Squirrell.....Nine and one-third	do	Clerk	344 58
H. M. DeLong.....Two	do	do	66 66
F. Black.....Four and two-thirds	do	Teamster	140 31
P. Scott.....Five	do	do	157 50
M. Laughlin.....Twelve	do	Stenographer	299 99
Sundry persons.....Wages, laborers, etc....			2,704 75

EXPENSES ($2,093.34.)

American Abell Engine Co: Rep'g threshing machine..... 4 90
Beattie, Geo: Harness repairs..... 14 66
Barber, T. C: Photos, 4.20: Bate, K: Mending grain bags, 6.02..... 10 22
Bollert, E. R. & Co: Sheeting, 10 yds, 3.00: Buchanan, J: Stamps, 16 80..... 19 80
Boyd, Alfred: Fertilizer, 4.15: Bursar: To pay sundries, 4 01..... 8 16
Seeds:—Jno. A. Bruce & Co, 34 23: Jos Breck & Sons, 44c: H. W. Buckbee, 1.65:
W. W. Barnard & Co, 5.70: W. A. Burpee & Co, 46c: Jas. Carter & Co, 14.38.. 56 86
Crow, J. W: Corn, 5 bush, 6 79: Clark, C. S: Corn, 12 bush, 14.52..... 21 31
Cleghorn, Thos: Bags, 15.00: Cornie, T. A: Painting, etc, 6.75..... 21 75
Creelman Bros. Co: Typewriter supplies, 3.00: Clemens, H. A. & Co: Lumber, etc, 84.80.. 87 80
Cook, Jas: Horse, 200.00: Can. Express Co: Charges, 36.36..... 236 36
C. P. Railway Co: Freight charges, 10.17: Collector of Customs: Duty charges, 14 98.. 25 15
Dooley, J. M: Flour sacks, 10.20: Dom. Express Co: Charges, 13.77..... 23 97
Day, T. J.: Stationery, 30.16: postage stamps, 20.00..... 50 16
Seeds:—Darch & Hunter, 7.63: Dieckmann, 2 00: Daniels Bros, 1.04: E. Druce, 4.32:
H. A. Dreer, 2.36: Robt. Evans Seed Co, 4.19: Wm. Ewing & Co, 1.59:
J. A. Everitt, 40c: D. M. Ferry & Co, 4.05: Ford Seed Co, 1.75:
J. J. H. Gregory & Son, 6.86: Garton's Seed Co, 16.24: Graham Bros, 15c.... 52 58
Guelph Paper Co. Twine, 85c: Guelph Pavement Co: Pavement, 185 ft, 23.20..... 24 05
G. T. Railway Co: Charges, 37.31: Grand & Toy: Stationery, 13.75..... 51 06
Gowdy Mf'g Co: Rep'g implements, 35c: Hughes, Jno: Moving experimental barn, 266.75 267 10
Seeds:—Hugo Heydenreich, 1.71: Jas Hunter, 35.39: C. Hoffman & Son, 2 65:
Huntington & Page, 25c: Jas. Hewer, 15.78: Hogg & Robertson, 2.52:
Jos. Harris Co, 45c: P. Henderson & Co, 87c: H. N. Hammond Seed Co, 42c:
Iowa Seed Co, 1.90: Jarman & Co, 1.47: Johnson & Stokes, 2.40:
A. N. Jones, 2.40: A. Kirsche, 2.64: Geo. Keith, 5.98..... 76 83
Irving, Thos: Building foundation walls, 175.00: Kennedy, John: Lime, stone, etc, 75.04. 250 04
Kilgour Bros: Furnishings, 39.67: Livingstone Seed Co: Seeds, 77c..... 40 44
Landreth, D. & Sons: Seeds, 3.48: Morris, G. B Iron, hardware, etc, 119.61..... 123 09
Mitchell, Robt: Salt, soap, etc, 1.85: Morrison, The Jas. Mf'g Co: Pressure valve, 35.25.. 37 10
Seeds: H. Morton, 6 60: W. H. Maule, 5.70: L. L. May & Co., 3.10: J. & R. Miller, 5.00:
Henry Mette, 1.22: F. B. Mills, 35c: G. F. McArthur, 8.00..... 29 97
Massey-Harris Co: Repairs, 1.50: McKenzie, D: Horseshoeing, 20.63..... 22 13
Macdonald, D. E. & Bro: Cotton for bags, 9 16: Nelles, Chas. L: Stationery, 50c..... 9 66
Nebraska Seed Co: Seeds, 90c: Northrup, King & Co: Seeds, 1.10..... 2 00
O'Donell, M: Carpentering, 5.05: Olds, L. L: Seeds, 37c..... 5 42
Paterson, Jno: Sand, 6.00: Petrie, A B: Drugs, 15c..... 6 15
Philipps, H. Seed Co: Seeds, 39c: Robertson, The Jas. Co: Disc, 8.00..... 8 39
Royal City Rag & Metal Co: Manure, 3.50: Reid & Ross: Blacksmithing, 4.70..... 8.20
Reed, J. H., V S: Pro. services and medicines, 2 20: Rennie, Wm: Seeds, 30.73..... 32 93
Ryan, J: Com. buying grain, 40c: Sundry persons: Manure, 51 50..... 51 90
Standard Fertiler Co: Fertiler, 14.50: Stewart, Robt: Lumber, 170.18..... 184 68
Stewart, Alex: Drugs and chemicals, 3 65: Sellows, H. & D: Blacksmithing, 1.75..... 5 40
Seeds: Jno. A. Salzer Seed Co, 8.93: Sutton & Son, 9.13: Otto Steiger, 3.12:
J. M. Smith's Sons, 1.20: Steele Briggs Seed Co: 15.78: Geo. A. Sexsmith, 5.00:
J. A. Simmers, 13.50: S. C. Sunley, 3.00..... 59 71
Stevens, Chas: Fertilizer, 20 sacks, 30 00: Tolton Bros: Repairs, 40c..... 30 40
Thistle Destroyer Co: Thistle destroyer, 1 pkg, 1.50: Thorburn, J M. & Co: Seeds, 4 88 6 38
Seeds: J. G. Thorp, 64.37: F. VonLochow, 71c: Vaughan's seed store, 2 30:
Jas. Vick's Sons, 71c: Vilmorin-Andrieux & Cie, 1.78: T. W. Wood & Sons, 1 35:
E. M. Zavitz, 18 25..... 89 97
Waters Bro: Furnishings, 1.73: Zavitz, C. A: Exps att'd'g conv'n *re* plant breeding, 39.93 41 66

EXPERIMENTAL DAIRY ($2,649.49).

J. A. McFeeters.....Nine months' salary as		Instructor Home Dairy	473 61
R. W. Stratton.....	do	Cheesemaker	499 99
J. Bready.....Two	do	Engineer	60 00
Albert Green.....Seven and ½	do	do	225 00
Victor Hooper.....Eight and ½	do	Assistant Engineer	283 30
G. Wilter.....Eight	do	Cattleman	272 00

AGRICULTURE.—*Continued.*

EXPERIMENTAL DAIRY.—*Continued.*

Sundry Persons: Wages assistants, laborers, etc 161 01
Bond, J. M. & Co: Iron, hardware, etc, 9.35: Ballantyne Dairy Supply Co: Supplies, 17.80 ..... 27 15
Bucham, Alex: Oats, 110 bus, 46.32: Bedford, Thos Oats, 292 bus, 93.65 ..... 139 97
Clemens, H. A. & Co: Flooring, 6.83: butter crates, 12.60: shingles, 2.91: corks, 100, 1.35: lumber, 8.52 ..... 32 21
Castner, Curran & Bullitt: Coal, 111 tons 700 lbs at 3 60 ..... 400 86
Crowe's Iron Works: Valve, 4 50: Carter, T. P: Share of contract for cutting ice, 19,25 ..... 23 75
Creamery Package Co: Hose, 5 ft, 1.31: milk and butter tickets, 5 00 ..... 6 31
Canada Jute Co: Bags, 16.72: Crowe, Jno: Grate bars, 10.66 ..... 27 38
Cunningham, R: Insurance premiums on butter 10 75
Cornie, T. A: Painting etc, 6.25: C. P. Railway Co: Charges, 6.34 ..... 12 59
Creelman Bros Co: Part cost of typewriter, 11.00: supplies, 7.89. ..... 18 89
Can. Express Co: Charges, 5.05: Col. of Customs: Duty charges, 1.04: duty on coal, 59.68 ..... 65 77
DeLaval Separator Co Oil, 5 gals, 2.25: supplies, 23.70 ..... 25 95
Day, T. J: Subscriptions, 9.17: stationery, etc, 11.63. ..... 20 80
Dairymen's Assn: Advertising 10 00
Dean, H. H: Travelling expenses *re* dairy conventions 21 20
Dom Express Co: Charges, 2.05: Dougherty, F K: Services as Stenographer, 4.69 ..... 6 74
Firstbrook Box Co: Dairy supplies, 66.00: Foster, Thos: Repg. brick work on boiler, 4.00 ..... 70 00
Grand & Toy: Stationery, 2.75: Gurney Scale Co: Repairing scales, 14.86 ..... 17 61
Goldie, Jas. & Co: Shorts, 5 tons, 100.00: bran, 11½ tons, 203.50: middlings, 2½ tons, 53.00 ..... 356 50
Grant Hamilton Oil Co: Metal polish, 1 doz 3 45
Guelph Cartage Co: Cartage of coal 17 19
Guelph Pavement Co: Cement work, 16.00: Grant, Thos. F: Wagon covers, 3, 13.00 ..... 29 00
G. T. Railway Co: Charges, 15.36: G.N W. Telegraph Co: Telegrams, 4.50 ..... 19 86
Hodson, F. W: Ayshire heifers, 2 ..... 200 00
Holstein-Friesian Assn: Registration of stock 10 25
Hewer, Jas: Oil cake, 3 tons, 84.00: oats, 45 bus, 18.00: sundries, 2 00: salt, 13.83 ..... 117 83
Kennedy, Jno: Lime, ashes, etc 11.00: LeRoy Chemical Co: Boiler compound, 1 bbl. 35.40 ..... 46 40
Latimer, H: Wages stableman, 16.50: Laking, Chas: Oats, 94 bus. 25.45 ..... 41 95
Morris, G. B: Iron, hardware, etc 87 19
Mitchell, Robt: Salt, 2 bbls, 2.30: supplies, 7.20 ..... 9 50
McClure, Wm: Holstein cow, 200 00: McNairn, J. H: Parchment paper, 20.97 ..... 220 97
McIntosh & Galbraith: Printing and advtg, 57.90: McAllister, Geo: Sawdust, 38.50 ..... 96 40
Northey Co: Repairs to pump, 18 51: O'Donell, M: Carpentering, 9.47 ..... 27 98
O'Brien, M: Cleaning and packing ice houses, 8.25: Occomore, H: Tinware, 6.35 ..... 14 60
Presant, E. J: Chopping feed 13.85: Pretsell, J: Services as cattleman, 33.00 ..... 46 85
Postmaster: Postage stamps, 22.00: Queen City Oil Co: Oil, 16 gals, 11.60 ..... 33 60
Rose, Laura: Services lecturing, 27.50; Robertson, The James Co: Discs, 10.00 ..... 37 50
Reed, J. H., V.S.: Professional services and medicines 10 25
Robertson, A. & Son: Castings, repairs, etc 35 39
Stevely, Wm. & Son: Milk cans, 29, 115.00; Sundry persons: Milk supplied, 5,250.69 ..... 5,365 69
Smith, W. H: Repairs, etc, 13.40; Stewart, Robt: Lumber, 8.05 ..... 21 45
Sallows, H. & D: Blacksmithing, 20.34; Stewart, Alex: Drugs and chemicals, 9.96 ..... 30 30
Skinner, G. H: Taking down fence and repairing gates 21 00
Thornton & Douglas Overalls, smocks, etc 5 10
Thorpe, G. J: Disinfectant, 3.00; Wingate Chemical Co: Absorbent cotton, 10 lbs. 3.00 ..... 6 00
Wilson, W. C. Co: Packing, gauge glasses, etc. 21.65; Wheatley, A. E: Inspn of scales, 9.00 ..... 30 65
Westover, C. A: Cleaning, etc, 4 18; Yeo, Wm: Wages milking, 5.20 ..... 9 38
Sundry persons: Accounts unennumerated under, 10.00 ..... 29 54

9,894 61

Less Revenue :—

Sale of butter, 25,587 lbs at 15c to 24c	5,107 53	
cheese, 8,312¼ lbs at 7c to 12c	870 40	
milk, 15,689¾ lbs at 4c qt	627 59	
skim milk and whey, 131,200 lbs at 10c per cwt	131 20	
Cream, 22 gals at 60c; 2 gals at 80c	14 80	
Cattle	402 50	
bull calf	10 00	
hide	3 00	
Pasteurizer	35 00	
3 cheese vats	25 00	
milk cans	4 50	
old churn	5 00	
iron	66	
Students fees	8 00	
		7,245 12

$2,649 49

AGRICULTURE.—*Continued.*

CENTRAL DAIRY SCHOOL.

SALARIES ($1,816.50).

Mark Sprague	Three months' salary as	Instructor,	Separator		$300 00
J. Stonehouse	do	do	Butter-making		240 00
J. A. McFeeters	do	Ass't. do	do		200 00
G. H. Barr	do	do	Cheese-making		300 00
R. W. Stratton	do	Ass't. do	do		200 00
C. McDougall	do	do	Milk-testing and Mathematics		150 00
Laura Rose	do	do	Home Dairy		180 00
Jean Joy	do	do	Domestic Science		71 50
James Bready	do	Engineer			90 00
J. McGillivray	do	Laborer			85 00

EXPENSES ($345.48).

Ballantyne Dairy Supply Co: Dairy supplies, 67.88: Bond, J. M. & Co: iron, h'dware, etc, 8.70		76 58
Bollert, E. R. & Co: Towels 3 doz, 6.70 Bursar: To pay sundries, 3.52		10 22
Creamery Package Mfg. Co: Milk weigher, 75.00: testers, 4, 38.00: appliances, 3.00:		116 00
Dairy Supplies: Creamery supply Co, 72c: Can. Dairy Supply Co: 5.00: Conn's Butter Improvement Co 1.00 Clemens, H. A. & Co: 3.00		9 72
Calder A. C: Wages as Laborer, 5.50: Creelman Bros. Co: Supplies, 1.00		6 50
Cornie, T. A: Painting, etc, 42.10: C. P. Railway Co: Charges, 5.24		47 34
Collector of Customs: Duty charges, 40.10: Can. Express Co Charges, 13.05		53 15
Dodge Mfg. Co: Rope dressing, 4.00: Douglass, O Butter culture, 1.50		5 50
Dairymen's Assn: Advertising, 10.00: Dawson, J. H: Curd mill, 12.00		22 00
Davidson, Jno Oak tables, 8.00: repg couch, 2.50		10 50
De Laval Separator Co: Oil, 2.25: Day, T. J: Stationery, 6.85		9 10
Derbyshire, D: Exps at Dairy School, 5.00 Dom. Express Co: Charges, 2.20		7 20
Elmer & Amend: Dairy supplies, 40.05: Firstbrook Box Co: Dairy appliances, 20.00		60 05
Farmers' Advocate: Advertising, 2.00: Guelph Pavement Co: Cement work, 96.00		98 00
Graham, Jno: Milk, 1.00: Gummer, H: Advertising, 13.20		14 20
G. T. Railway Co: Charges, 24.23: Hansen's Labty: Supplies, 75c		24 98
Konstantin, Hansen & Schroder: Pasteurizer, 152.70: Lister, R. A. & Co: Repg separator, 85		153 55
Mitchell, Robt: Dairy salt, 11 bb's, 24.75: sundry groceries, 11.56.		36 31
Morris, G. B Hardware supplies, 13.00: McCrae, J. A: Use of cups, 35c		13 35
McLean & Dawson: Repairs, 1.90: McIntosh & Galbraith: Ptg & advtg, 52.25		54 15
McNairn, J. H: Parchment butter paper, 31.75. sundries, 2.21		33 96
Nafis, L. F. & Co: Milk-testing bottles, 15.87: thermometers, 1 doz, 4.00		19 87
Occomore, H I on pipe, etc. 5.30: *O. A. C. Review*: Advertising, 6.00		11 30
O'Donell, M: Carpentering, 5.25: Philip, R. W: Iron, pipe, castings, etc, 10.65.		15 90
Purvis, A. P: Exps visiting cheese factory, 3.03: Pringle, G. D: Alarm clocks, 2, 3.00		6 03
Postmaster: Postage stamps, 30.00: Robertson, A. & Son. Repg boiler, 2.35.		32 35
Rumford, A: Iron, tinware, etc, 37.43: labor, 11.40		48 83
Robb, Geo. C: Services lecturing, 5.00: Steinberger, Hendry Co: Cravons, 1.60		6 60
Stevely, Wm. & Son: Milk cans, 8, 35.50: Slawson, C. H. & Son: Supplies, 24c		35 74
Stewart, Robt: Lumber, 85c: sundry persons: Milk supplied, 5,302.12		5,302 97
Stewart, Alex: Drugs and chemicals, 17.99: Sunley, Wm: Iron, tinware, etc, 85		18 84
Vermont Farm Machine Co: Dairy supplies		2 50
Witt, W. E: Services during creamery course		15 00
		6,378 29

Less Revenue:—		
Students' fees	115 10	
Sale of butter, 21,787 lbs at 15c to 23c	4,597 83	
do cheese, 7,556 lbs at 8c to 11c	775 70	
do skim milk and whey	20 10	
do cream, 21⅔ pints	4 33	
do buttermilk	3 00	
do milk can, 3.75: old churn, 1.00: curd mill, 10.00	14 75	
do breakages by students	2 00	
	5,532 81	
		845 48

POULTRY DEPARTMENT ($1,253.02.)

A. D. Hunt	Twelve months' salary as Assistant Manager	420 00
Sundry persons—Poultry: Wm. K. Kerr, 15.00: D. Gordon, 4.30: A. Kitching, 5.74: J. Gordon, 9.21: Wm. Stallibass, 9.56: W. Bolton, 14.00: C. W. Young, 8.00: D. Clark, 4.10: Wm. Argo, 21.47: L. H. Baldwin, 3.00: Thos. M. Shea, 6.00: E. A. Hales, 1.75: F. R. Webber 19.50: W. White, 2.10: Mrs. Angell, 10 50: B. Merewether, 7.00: W. Kellington, 7.75: L. Parkinson, 3.60: A. Hewing, 5.80: G. McGill, 5.90: F. McGilligan, 14.30: Jno. Squirrell, 4.00: J. E. Howitt, 16.50: H. Panabaker, 14.47: Geo. McIntosh, 5 60: G. A. D. Hunt, 8.15: W. J. Pinkney, 4.67. G. Atkinson, 16.44: F. W. Krouse, 28.63: D. Ross, 7.07: R. Laing, 1.43: M. McNaughton, 10.24: Wm. Armstrong, 6.50		302 28

AGRICULTURE.—*Continued.*

POULTRY DEPARTMENT.—*Continued.*

Anderson, C. & Co: Furnishings, 90c: Bell Tel. Co. Messages, 35c	$ 1 25
Setting eggs, H. J. Blanchard, 300, 22.50: A. Boque, 3 00: C. R. B. Bryan, 5.00	30 50
Bustamante, D: Services, 4.19: Bond, J. M. & Co: Coal tar, 5.50	9 69
Barbaree, D: Wheat, 122 bu, 95.99: poultry, 1.15	97 14
Buchanan, J: Ink drawings, 7.20: Cyphers Incubator Co: Poultry feed, 9.50	16 70
Carter, Wm: Wheat, 114 bu, 85.94: cornmeal, 300 lbs, 5.70: middlings, 1½ tons, 32.75: chop feed, 5,525 lbs, 77.62: bran, 1½ tons, 29.75: shorts, 500 lbs, 5.50: oats, 10 bu, 4.50: barley, 75 bu, 43.70: sundries, 12.78	298 24
Clarke, W: Setting eggs, 5.00: Climax Brooder Co: Brooders, 15.00	20 00
Crane, R. N: Services, 22.00: Calder, A. C: Labor, 1.00	23 00
Creelman Bros. Co: Part cost typewriter, 11.00: supplies, 2.64	13 64
Cray Oil Co. Coal oil, 224 gals, 40.57: Cody, A. J: Wrench, 1.00	41 57
Can. Express Co: Charges, 32.15: Collector of Customs, Duty charges, 23.00	55 15
Dairy Dept: Milk, 25.77: Dougherty, F. K: Services as stenographer, 36.18	61 95
Daniels, C. J: Furnishings, 3.00: root cutter, 4.00	7 00
Daily, J: Stationery, 1.20: Day, T. J: Stationery, 16.92	18 12
Dom. Express Co: Charges, 1.19: Farmers' Co-operative Pkg Co: Poultry feed, 2.00	3 19
Goldie, Jas. Co: Goose wheat, 3½ tons, 91.00: Groom, J: Repg lock, 25c	91 25
Glendinning, H: Setting eggs, 2.00: Goy, G. H: Sand, 75c	2 75
Guelph Cartage Co: Cartage, 75c. Guelph Soap Co: Water glass, 2.00	2 75
G. T. Railway Co: Charges, 5.20 G. N. W. Tel Co: Telegrams, 52c	5 72
Hales, A: Poultry feed, 32.82: Hewer, Jas: Poultry feed, 61.36	94 18
Howitt, J: Sand, 75c: Kennedy, Jno: Lime, 3.15	3 90
Morris, G. B: Hardware sundries, 10.61: Morrison The Jas. Co: Boiler brushes, 5.00	15 61
Millar, J. & R: Poultry feed, 1.00: Murton, H: Feed, 6.35	7 35
Morgan, A. J: Thermometers, 6, 3.75: egg baskets, 6 doz, 6.00: poultry feed, 19.05: furnishings, 7.20	36 00
Miller, G. W: Setting eggs, 135, 6.75: McCrea, J. A: Furnishings, 6.13	12 88
Macdonald, D. E. & Bros: Shades, 1.35: cotton, 3.15	4 50
McIntosh & Galbraith: Printing, etc., 23.00. O'Donell, M: Carpentering, 3.30	26 30
Office Specialty Mfg Co: Book case, 10.50. sundries, 94c	11 44
Presant, E. J: Chopping feed, 1.70: Postmaster: Postage stamps, 26.75	28 45
Rumford, A: Tinware, 2.30: *Reliable Poultry Journal*: Sub, 3.75	6 05
Richardson, G. A: Broom, 1.05: Stanton, K. B: Wages as laborer, 88.78	89 83
Smith, W. H: Repairs, 2,00: Sutherland, Jno Poultry feed, 97.65	99 65
Stewart, Robt: Lumber, 43 84. Sharp, J: Book fyles, 4.00	47 84
Sunley, Wm: Incubator lamps, 5.20: Stewart, Alex: Drugs and chemicals, 50c	5 70
Thorp, G. J: Poultry feed, 12.73: Turnbull, Wright Co: Stationery and printing, 7.63	20 36
Western Poultry Food Co: Poultry feed, 24.00: Wheatley, A. E: Inspection of scales, 1.00	25 00
Willson, Chas. B: Photos	15 80
Wilson Jas. & Sons: Oat feed, 2,090 lbs, 36.05: corn chop, 2,060, 27.30: bags, 1.85	65 20
	2,137 93
Less Revenue :—	
Sale of setting eggs 146 05	
eggs for domestic use, at 10c to 30c 82 93	
poultry 119 55	
dressed poultry 529 40	
feathers 4 10	
old bones 2 88	
884 91	
	1,253 02

HORTICULTURAL DEPARTMENT.

SALARIES ($3,690.61).

Wm. Squirrell	Twelve months'	salary as	Gardener	700 00
A. James	Three	do	Florist	159 50
W. Hunt	Seven	do	do	315 00
W. Wells	Twelve	do	Assistant Florist	398 32
J. Tever	Nine	do	Teamster	289 00
J. McGillivray	Three	do	do	93 00
Sundry persons	Wages, laborers, etc.			1,735 79

EXPENSES ($1,672.23).

Bond, J. M. & Co: Hardware, etc, 39.42: iron pipe, 22.00: iron, 50.25: lawn mower, 4.50	116 17
Beattie, Geo: Harness repairs, 9.60: Bell Tel. Co: Messages, 30c	9 90
Borthwick, Mrs. S: Manure, 25.50: Bollert, E. R. & Co: Furnishings, 4.00	29 50
Beaver Flint Glass Co: Bottles, 1.65: Bruce, Jno. A. & Co Seeds, Bulbs, etc, 37.44	39 09
Burpee, W. A. & Co: Seeds, 3.33: Barr & Sons: Seeds, 16.94	20 27

AGRICULTURE.—*Concluded.*

HORTICULTURAL DEPARTMENT.—*Continued.*

EXPENSES.—*Continued.*

Burgess & Son: Photos, etc, 7.05:	Crowe's Iron Works: Grate bars, 21.68	$28 73
Castner, Curran & Bullitt: 39 tons 400 lbs at 3.60		141 12
Coady, A. J: Wrenches, 3.00:	Cornie, T. A: Painting, 4.50	7 50
Creelman Bros. Co: Part cost of typewriter, 11.00:	supplies, 3.65	14 65
Cray Oil Co: Safety Oil, 25 gals, 3.87.	Central Cigar Co: Tobacco stems, 2.00	5 87
Crowe, Jno: Grates, 412 lbs, 13.39:	Can. Forestry Ass'n: Membership fee, 1.00	14 39
C. P. Railway Co: Charges, 2.84:	Can. Express Co: Charges, 14.45	17 29
Collector of Customs: Duty charges, 22.35:	duty on coal, 16.81	39 16
Dreer, H. A: Seeds, 8.83:	Day, T. J: Stationery, 13.95	22 78
Dom. Express Co: Charges, 5.81:	Dougherty, F. K: Services, stenographer, 4.69	10 50
Foster Pottery Co: Flower pots, 31.24:	Fields, Robt: Manure, 8.40	39 64
Guild, L. R: Map, 1.50:	Groff, H. H: Bulbs, 12.00	13 50
Guelph Cartage Co: Teaming coal, 13.72:	Grimsby Mf'g Co: Berry boxes, crates, etc, 14 38	28 10
Guelph Paper Co: Paper, 45c:	Groom, Jno: Rep'g locks, 10c	55
Goldie & McCulloch Co: Rep'g boiler, 13.35:	Grand & Toy: Stationery, 5.50	18 85
Guelph Light & Power Co: Gas plate, etc, 9.28:	buzzer, wiring, etc, 4.64	13 92
G. N. W. Tel. Co: Telegrams, 65c:	G. T. Railway Co: Charges, 14.28	14 93
Henderson, Peter & Co: Seeds, 1.39:	Harrison, W. H: Trees, bulbs, etc, 86.90	88 29
Hamilton, W: Flower Pots, 86c:	Hewer, Jas: Sacks, 5.00	5 86
Hutt, H. L: Expenses visiting Universities, 28.23:	trav. expenses, 8.60	36 83
Hodgetts, P. W: Trav. expenses, 3.00:	Hunt, Wm: Trav. expenses, 3.60	6 60
James, Arthur: Furnishings, 7.25:	Krelage, E. H. & Son: Seeds, etc, 15.98	23 23
Kennedy, Jno: Lime, stone, etc, 18.05:	Kinzie, J. W: Hoe, 75c	18 80
Massey-Harris Co: Rep'g implements, 1.75:	Mitchell, R: Barrels, 40, 4.00	5 75
Morris, G. B: Iron, hardware, etc, 61.54:	Morrison, The Jas. Co: New closets, 24.25	85 79
McAteer, Jno: Manure, 30.60:	McIntosh & Galbraith: Envelopes, pt'g, etc, 9.25	39 85
Occomore, H: Iron, tinware, etc, 18 65:	Office Specialty Co: Chair, 94c	19 59
Pringle, G. D: Photo supplies, 35 65:	Potter, Mrs. S: Wax models of fruit, 232.94	268 59
Patterson, J. D: Sand, 2.20:	Peart, H. S: Exps collecting fruit, 4.85	7 05
Postmaster: Postage stamps, 24.00:	Rennie, Wm: Seeds, 6.10	30 10
Robertson, The James Co: Castings, 18.21:	sink, 20.20	38 41
Reed, J. Hugo, V.S: Medicines, 1.80:	Robertson, A & Son: Repairs, 11.64	13 44
Stewart, Alex: Drugs, 4 90:	Steinberger, Hendry Co: Maps, charts, etc, 20 75	25 65
Stewart, Robert: Lumber, 58.25:	Sunley, Wm: Repairs, tinware, etc, 11.55	69 80
Sundry persons: Manure, 23 25	Spramotor Co: Sprayer supplies, 6.35	29 60
Sundry persons: Services picking fruit, 125.47:	Steel Briggs Seed Co: Seeds, 18.60	144 07
Stechert, G. E: Book, 1.88:	Sallows, H. & D: Horseshoeing, 15.40	17 28
Tolton Bros: Repairing plow, 40c:	Tenant & Ward: Photos, 4.00	4 40
Thorp, G. J: Seeds, 1.95.	Thorburn, J. M. & Co: Seeds, 31.67	33 62
Vaughan's Seed Store: Seeds, 3.25:	Vick, James Sons: Seeds, 1.35	4 60
Virtue & Co: Books, 5.00:	Webster Bros: Seeds, plants, etc, 8.41	13 41
Woolverton, L: Peat, 1.00:	Woodyatt, A. R & Co: Repg mower, 30.85	31 85
Waters Bros: Table brush, 50c;	cardboard, 1.73	2 23
Williams, Geo: Apple barrels, 40, 4.00:	Weir, D: Drugs, etc, 1.80	5 80
		1,716 90

Less Revenue:—		
Sale of vegetables	2 50	
strawberries	33 67	
fruit trees	2 50	
Use of garden team	6 00	
		44 67
		1,672 23

MECHANICAL DEPARTMENT ($875.18).

E. A. Crawford: Twelve months' salary as mechanical Foreman		749 99
Bond, J. M. & Co: Hardware, tools, etc, 17.80	Cody, A. J: Wrenches, 3.00	20 80
Crawford, E A: Trav expenses, 1.35:	Can express Co: Charges, 35c	1 70
Groom, John: Repairing lock, etc, 40c:	Morris, G. B. Tools, 87.98	88 38
Robinson, G. H: Services, 4.58:	Sunley, Wm: Tools, 4.63	9 21
Shurley and Dietrich: Saws		5 10
Total Agriculture		234,339 82

HOSPITALS, CHARITIES, SANITARY INVESTIGATIONS, ETC.

HOSPITALS AND CHARITIES ($201,117.92).

The Treasurer :—

General Hospital, Toronto, 12,303.61: Grace Homœpathic Hospital, Toronto, 2,737.00:
Hospital for Sick Children, Toronto, 7,159 61: St. Michael Hospital, Toronto, 9,588.39:
Western Hospital, Toronto, 4,135.74 The Orthopedic Hospital, Toronto, 990 90:
City Hospital, Hamilton, 2,719.27: St. Joseph's Hospital, Hamilton, 1,579.95:
General Hospital, Kingston, 3,200,73: Hotel Dieu Hospital, Kingston, 5,599.44:
General Protestant Hospital, Ottawa, 3,549.92: Roman Catholic Hospital, Ottawa, 5,735 20:
House of Mercy Lying-in Hosp, Ottawa, 1,565.27: Sick Children's Hosp, Ottawa, 362.49:
Maternity Hospital, Ottawa, 328.49: St. Luke's General Hospital, Ottawa, 2,864.77:
General Hospital, London, 3,614 77: St. Joseph's Hospital, London, 584.91:
General & Marine Hospital, St. Catharines, 921.05: Galt Hospital, 393.96:
General Hospital, Guelph, 2,863.90: St. Joseph's Hospital, Guelph, 1,346 17:
General Hospital, Pembroke, 1,330.34: General Hospital, Mattawa, 899.07:
J. H. Stratford Hosp, Brantford, 1,334.60: St. Joseph's Hosp, Port Arthur, 1,323 61:
Belleville Hospital, 1,040.02: St. Vincent de Paul, Hospital, Brockville, 1,857.23:
General Hospital, Brockville, 1,200.50. General & Marine Hosp, Collingwood, 534.28:
Nichol's Hospital, Peterboro, 759.88: St. Joseph's Hospital, Peterboro, 1,482 39:
Hotel Dieu Hospital, Windsor, 1,151.23: St. Joseph's Hospital, Chatham, 1,399.51:
General Hospital, Chatham, 1,910.84 General Hospital, Stratford, 1,014 02:
Amasa Wood Hosp, St. Thomas, 592.70: General & Marine Hosp, Owen Sound, 700.88:
General Hospital, Sudbury, 494.75: St. Joseph's Hospital, Sudbury, 872.05:
General Hosp, Huntsville, 1,433.35: Huntsville Hosp, 1,215.06: Woodstock Hosp, 617.76:
Berlin & Waterloo Hospital, Berlin, 873.35: General Hospital, Sarnia, 1,678.38:
Royal Victoria Hospital, Barrie, 706.83 Hotel Dieu Hospital, Cornwall, 1,976.73:
General Hosp, Cornwall, 1,428.84 National Sanitarium Hosp, Gravenhurst, 2,508.15:
General Hospital, Rat Portage, 393.18: General Hospital, Parry Sound, 352.61:
General Hospital, Sault Ste. Marie, 2,488.64. House of Industry, Toronto, 3,665.13:
Victoria General Hospital, Renfrew, 66.20: Victoria General Hospital, Thessalon, 217.48:
House of Providence, Toronto, 11,623.08: Home for Incurables, Toronto, 3,206.42:
St. John's Hospital, Toronto, 1,068.15: Convalescent Home, Toronto, 393.26:
The Church Home, Toronto, 617.12: The Haven, Toronto, 1,709.11:
Old Folk's Home, Toronto, 686.21: Good Shepherd & Female Refuge, Toronto, 1,912.73:
Aged Men's Home, Toronto, 554.61: House of Refuge, Hamilton, 2,705.08:
Home for Aged Women, Hamilton, 809.69: St. Peter's Home, Hamilton, 831.39
House of Industry, Kingston, 1,022.49: House of Providence, Kingston, 4,901.89:
Home for Friendless Women and Infants, Kingston, 217.31:
R. C. House of Refuge, London, 2,297.96: Home for Aged People, London, 1,834.21:
Convalescent Home, London. 108.85 Home for Incurables, London, 633.22:
St. Patrick's Refuge, Ottawa, 2,238.88: St. Charles Hospice, Ottawa, 3,353.37:
Home for the Aged, Ottawa, 1,009.33: Refuge Branch Orphans' Home, Ottawa, 559.16
The Home for Friendless Women, Ottawa, 836.93
The Refuge of Our Lady of Charity, Ottawa, 3,518.43 Home for Incurables, Ottawa, 401.94:
House of Providence, Guelph, 1,617.98: The Thos. Williams Home, St. Thomas, 535.43.
House of Providence, Dundas, 1,890.84: Home for the Friendless, Chatham. 309.54:
The Widow's Home, Brantford, 316.05: The Home for the Friendless, Belleville, 227.64:
The Protestant Home, Peterboro, 375.85: The House of Providence, Peterboro, 1,006.75:
Home for the Friendless, Windsor, 414.75: Home for the Aged & Infirm, Cobourg, 204.40:
Home for the Aged, Lindsay, 455.98 St. Paul's Home for the Aged, Cornwall, 1,041.39:
Home for Aged & Infirm, Bowmanville. 116.62: R. C. Orphan Asylum, Toronto, 2,247.34:
Protestant Orphans' Home, Toronto, 1,291.52: Girls' Home, Toronto, 539.22:
Boys' Home, Toronto, 602.74: The Working Boys' Home, Toronto, 310.04:
Infants' Home, Toronto, 1,405.66: St. Nicholas' Home, Toronto, 453.20:
Rescue Home for Women, Toronto, 192.58: Children's Shelter, Toronto, 137.42:
Industrial Refuge, Toronto, 212.06: St. Mary's Orphan Asylum, Hamilton, 458.86:
Protestant Orphan Asylum, Hamilton, 21.90: Boys' Home, Hamilton, 547.06:
Girls' Home, Hamilton, 236.96: Home for the Friendless, Hamilton, 414.32:
S. A. Rescue Home, Hamilton, 108.22: Orphans' Home, Kingston, 320.62:
House of Providence, Kingston, 500.32: Hotel Dieu Orphanage, Kingston, 269.94:
Orphans' Home, Ottawa, 446.06: St. Patrick's Orphan Asylum, Ottawa. 450.80:
St. Joseph's Orphan Asylum, Ottawa, 1,191.54:
Rescue Home and Children's Shelter, Ottawa, 153.66: Infants' Home, Ottawa, 215.64:
R. C. Orphans' Home, London. 605.82: Protestant Orphans' Home, London, 296.60
Women's Refuge and Infants' Home, London, 243.48:
Rescue Home for Women, London, 369.46:
Protestant Home Orphanage Branch, St. Catharines, 149.58:
Orphan Asylum, St. Agatha, 381.68: Orphans' Home, Fort William, 206.10:
Berlin Orphanage, 86.94 ..... $186,296 52

Mattawa Hospital: Grant towards re-erection, destroyed by fire 500 00
Canadian Humane Society: Legislative grant 250 00
Canadian Conference of Charities and Correction: Legislative grant. 250 00
Warwick Bros. & Rutter: Printing and binding report 39 20

Legislative Grant :—

Victoria Industrial School, 5,641.90. St. John's Industrial School, 1,569.20:
Alexandra do 1,001.70: St. Mary's do 69.40 8,282 20
Prisoners' Aid Society, 2,500.00: Victoria Order of Nurses, 2,500.00:
Salvation Army: Prison gate work, 500.00..... 5,500 00

HOSPITALS AND CHARITIES.—*Continued.*

SANITARY INVESTIGATIONS, ETC. ($12,145.75.)

Dr. C. A. Hodgetts, twelve months' salary as Inspector. $2,000 00
do travelling expenses and disbursements 700 00
Dr. J. A. McCollum, services as Acting Inspector 12 00
Laboratory appliances, chemicals and supplies :—
Chandler & Massey, 89.37 W. Lloyd Wood, 1 60: Parke, Davis & Co., 39.05: Fletcher Mfg. Co., 21.00 Pure Gold Mfg. Co., 3.00 J. A Amyot, 2.10: T. Eaton Co., 90c. Imperial Varnish Co., 2.19 . . . . . 159 21
Lake Simcoe Ice Co : Ice, 64.50 C. A. Dunning Feed for animals, 4.33. . . . . 68 83
W. Harris Care of animals, 1.50. James Knowles. do 199.50 . . . . . 201 00
C. Clarke: Cleaning rooms and washing towels, 52 50. P. H. Bryce: Trav. expenses, 250.00 302 50
Bell Tel Co.. Messages, 4.35: Can. Express Co.: Charges, 10.05 . . . . . 14 40
Dom Express Co : Charges, 50c : G. W. Ross: Services in laboratory one month. 75.00 75.50
A. H.W. Caulfield: Services laboratory, 3 mos., 160 00: R. Crossley: Services, 24.00 . 184 00
P. Blakeston's, Sons & Co: Books, 11.25. P. S. King & Son: Book, 1.40 . . 12 65
Scientific American: Subscription, 5 00: Mining Engineer: Subscription, 2.00 . . . . . 7 00
Conference of State and Provincial Board Health N A. dues 5 00
British Medical Journal. Subscription 10 43
Dr, J. A. Amyot: Trav. expenses, meeting American Bacteriologists, Chicago 39 80
Experimental Sewage, Berlin :—
Dr. J. A. Amyot: To pay travelling expenses, 118.35: board and lodging, 185.40: livery hire, 9.20: chemicals, supplies, etc., 10.44: gas burner, 2 00: telephone messages, postage, etc., 5 33: freight, cartage, etc., 13.46: apparatus, etc., 6.55: Berlin Gas Co.: Gas, 9.55: Pay lists, wages laborers, etc , 633.30: G. G. Nasmith, board, 54.05: Travelling expenses, 9.20: Laundry, 2.78: A. H. A. Robinson, board, 122.00: Travelling expenses, 8.50 Laundry, 3.15 . . . . . 1,193 26
H. L. Hall & Son: Apparatus, etc., 152.07: Booth Copper Co.. Apparatus, etc., 201.50 353 57
G. E. Potter: do 46.82: Chandler & Massey: do 332.46 379 28
M. Ott: Tile, 1.96: C. Dochr: Barrels, 2.10: P. Hymmen: Sand, etc., 12.06 . . . . 16 12
D. Shoemaker Sand, 30c.: R. Bockner: Coke, 21.00: P. Gies, sewer pipe, etc., 62.26 83 56
A. Dengis Lumber and carpentering, 8.32: Berlin Gas Co: Gas, 4.20 . . . . . 12 52
R. H. Mullin Services as chemist, 50.00: A. Hickerman, 44.00: G. G. Nasmith: Services as chemist, 300.00 A. H. A Robinson: 249.99 . . . . . 643 99
W. M. Davis, C.A.: Services 6.00 day, 177.00.. F. Bricker: Livery hire, 55.50 . . . . 232 50
A. B. Campbell: Livery hire, 1.50: Louis Ernest: Cartage, 2.10 . . . . . 3 60
R. Bates: Cartage 75

Outbreak Smallpox, Pembroke:—
Medical attendance:—Dr. W. T. Irwin, 40.00: Dr. R. N. Kyle, 210.00: Dr. N. H. Ferguson, 210.00: Dr. W. C. Beaman, 102.00. . . . . 562 00
Services as Cook: H. Debursey, 54.00: G. Wilcox, 54.00 . . . . . 108 00
Services as Patrol etc: J. Burrard, 68.00 A. Adams, 12.75: Isaac Young, 3.00: H. Mitchell. 38.00: J. E. Mullin, 44.00: G. Cardiff, 11.25: M. McKinnon, 5.00.. 182 00
D. McDonald Wood, 5.10: James Stewart, bankets, stove etc, 17.19 . . . . . 22 29
George Gordon: Rent of house, 25.00 Leacy & Shields Furnishings, 5.95 . . . . 30 95
Dunlop & Co: Furnishings, 5.31 W. Beatty: Furniture, 5.50 . . . . . 10 81
D. Sheppard: Supplies, 69.24: J. R. Lockart: Supplies, 20.00 . . . . . 269 25
Kehoe, Bros: Lumber, carpentering, etc, 245.00: A. McGillis: Livery hire, 17.50 . . . . 262 50
P. Fournier: Teaming, 96.00: Dom, Express Co: Charges, 2.25 . . . . . 98 25
C. P. Railway Co. Freight charges, 16.18: M. Cecile: Meals for men, 126.00 . . . . . 142 18
Pembroke *Standard*: Ptg, certificates, 4.00: W. T. C. Bethel: Vaccine points, etc, 97.35. 101 35
Travelling expenses: Dr. R. N. Kyle, 104.30: Dr. N. H. Ferguson, 112.40: Dr. W. C. Beamen, 70.75 . . . . . 287 45

Smallpox Sudbury :—
Sudbury Bld'g Supply Co: Work on pest house, 13.41: R. House: Furnishings, 12.28 . . 25 69
A. Dubreiul: Wood, 18.75: J. Bidgood: Wood, 69.00 . . . . . 87 75
R. Martin: Supplies, 219.14: Dr. W. H. Milligan: Medicines, 19.55. . . . . 238 69
F. W. Micklethwaite: Photo supplies, 8.42: L. O'Connor Medicines, 7.50 . . . . . 15 92
J. Davis: Teaming, 8.00: J. Conway: Livery hire. 3 50. . . . . 11 50
J. Tourangan: Services in charge, 302.00: Dr. R. H. Arthur: Services, 75.00 . . . . 377 00
Dr. R. B. Struthers: Services, 15.00: N. Bailey. Services constable. 4.00 . . . . 19 00
Journal Printing Co: Printing and stationery, 15.35: W. A. Quibell: trav exps, 33.75. . 49 10

Smallpox Mackeys Camp :—
E. Tranter: Seve's constable, 74.00: G. Swanson: Seve's constable, 94.00:
F. W. Butterfield Seve's constable, 78.00: J. Campbell: Seve's constable, 36.00:
Dellbridge, Bros: Livery hire, 35.00: M. M. Emmons. Expenses and disbt's, 39.80 . . 356 80

Quarantine Station Ottawa :—
C. R. Woodburn: In charge, 50.50: George Dussault: Cook, 26.00:
J. Cowan: Carpenter, 30.00: J. Davis & Son: Wood, 7.25: J. Cowan: Lumber, etc, 49.28:
P. L. Davey: Teaming, 42.00: W. Cunningham: Supplies, 43.14: J. Gleeson: Supls, 15.58:
McMillan & McLennon: Vaccine and drugs, 17.80.
Treasurer City of Ottawa: Maintenance of patients in Hospital, 915.12. . . . . 1,196 67

Smallpox Byng Inlet :—
A. H. Hagen: Nurse, 46.50: M. Labatt: Guard, 24.00 F. Maturin: Guard, 24.00:
Dr. R. Crosby: Services, 15.00: D. La Mondey: Rent of house, 5.00:
J. B. Trudeau: Board and lodging, 12.00 . . . . . 126 50
M. Ford: Services and expenses, smallpox, Kingston 10 02

HOSPITALS AND CHARITIES.—*Concluded.*

SANITARY INVESTIGATIONS, ETC.—*Continued.*

Dr. C. W. Walker: Services, smallpox, Spanish River			$55 00
Custer and Savidge Lumber Co: Expenses enforcing quarantine			49 88
Dr. R. H. Arthur: Services, diphtheria, Biscotasing			10 00
do : Travelling expenses do			18 00
Dr. T. G. Johnston: Services, smallpox, Walpole Island			50 00
Drs. Edmison and Larahan: Services isolating and vaccinating men, Big Island			150 00
Treasurer Kewatin: Expenses, smallpox outbreak			226 34
Treasurer Sturgeon Falls: Expenses, smallpox outbreak 1901			500 00
Treasurer Mattawa: Expenses, smallpox patient			83 89
			12,446 25
Less refunds :—			
Holland & Graves:	Smallpox outbreak	30 00	
Algoma Commercial Co:	do	50 00	
Michigan Lumber Co:	do	65 00	
Cleveland and Sarnia Sawmill Co:	do	50 00	
W. W Carter:	do	83 00	
Sale of rabbits		15 00	
do guinea pigs		6 25	
do book		1 25	
			300 50
			12,145 75

CHILDREN'S AID SOCIETIES ($2,258.17.)

Board of children :—	
Mrs. D. Campbell, 224 35: Walkerton C. A. Society, 19.00: Mrs. V. A. Cunningham, 643.86: Owen Sound C. A. Soc'y, 4.50: The Haven, Toronto, 10 00: Guelph Humane Soc'y, 13.75. Mrs. A. Allan, 21.00: W. Chalmers, 8.00: London C. A. Society, 62.50: Mrs. E. E. Sharpe, 7.50	1,014 46
Clothing for children :—	
T. Eaton Co, 214 39: St. Ledger Shoe Co, 5.00: Bachrack & Co, 66c: W. A. Murray & Co, 4.25: Mrs. V. A. Cunningham, 12.65: Owen Sound C. A. Soc'y, 4.25: The Haven Toronto, 1.65: Connor Bros, 65c: W. R. Brock & Co, 8.47: R. Simpson Co, 1.50: Walter Sharpe Co, 25c	253 72
Medical services: Dr. Lelia Skinner. 11.00: Dr. R. V. Bray. 5.00	16 00
J. G. Adams: Dentistry, 15.25: Mrs. V. A. Cunningham: Medicine, 6.45	21 70
Children's Shelter :—	
Cassels, Cassels & Brock: Rent, 285.00: City of Toronto: Water, 9.10: J. Harvie: Furniture, 4.00: Alex. Brown: Furniture, 12.00: C. P. Industries: Beds, 37.78: T. Eaton Co: Furnishings, 11.88: Harrington Bros: Paint, 65c.. Wm. Wilson: Use of sleigh, 2.00	362 41
V. A. Cunningham: To pay car fare, etc, 21.50: Wm. Briggs: Bibles, etc, 10.78	32 28
Owen Sound C. A. Society Photos and spectacles	4 80
J. S. Coleman: Photos of children, 1.75: V. A. Cunningham, Photos of children, 2.00	3 75
Trunk & Leather Goods Co: Leather goods, etc, 33.65: McIntosh Granite Co: Marble, 35.00.	68 65
Owen Sound C. A. Soicety: Travelling expenses of children	6 05
Ottawa do do	8 50
Rev. James Webb: do	11 00
V. A. Cunningham: Travelling expenses taking children to homes	45 90
D. C. Cunningham: do	94 65
J. H. Knight: do	7 60
G. T. Ry Co: Fares of children, 35.10: C P. Ry. Co: Fares of children, 17.50. T. H. & B. Ry Co: Fares of children, 1.15	53 75
Rev. J. Lediard: Rescuing and placing children in homes, 150.00: trav expenses, 33.75	183 75
B. F. Herald: Trav expenses do	6 20
General Marine Hospital, Owen Sound: Maintenance of child	9 00
Mrs. E. E. Sharpe: Receiving and finding homes and board of boys	14 00
St. Thomas C. A. Society: do	5 00
London do : Expenses of child ill with diphtheria	25 00
St. Thomas do : do investigating special case	10 00
Total Hospitals, Charities, etc	215,521 84

REPAIRS AND MAINTENANCE.

GOVERNMENT HOUSE ($7,834.13).

Jos. Graham ..... Twelve months' salary as Gardener and Caretaker	$ 550 00
Pay lists :—Wages, carpenters, bricklayers, plumbers, laborers, etc	2,298 90
Consumers Gas Co: Gas service to cottage, 3.06: gas, 241 38	244 44
Toronto Electric Light Co: Light current, 1,344.55: Water Works Dept: Water, 156.21	1,500 76
Wm McGill & Co :—	
16 cords hardwood, at 5.40 per cord, 86.40: 7¾ cords hardwood, at 6.25 per cord, 48 46	
7 cords pine, at 4.20 per cord, 29.40 2¼ cords pine, at 4.75 per cord, 10.68:	
27 tons stove coal, at 5.32 per ton, 143.64. 9 tons stove coal at 6.20 per ton, 55.80:	
24 tons nut coal at 5.32 per ton, 127.68 17 tons 1,875 lbs nut coal at 6.20 per ton, 111.21	
96 tons 500 lbs egg coal at 6.20 per ton, 595.76: bagging coal, 15.67: cutting wood, 15.75:	
35 tons 1,210 lbs soft coal at 8.50 per ton, 302.65	1,544 10
J. H. Milnes & Co :—	
12 tons 1,625 lbs soft coal at 4.15 per ton, 53.18; 30 tons 325 lbs soft coal at 4.75 per ton, 95.77	148 95
Wheeler & Bain: Tinsmithing and supplies, 62.73. Power Bros: Galvanized iron work, 42.55	105 28
Shipway Iron Works: Locksmithing and bellhanging	49 75
J. J. O'Hearn: Painting, reglazing, etc, 201.10: Smith's Dye Works: Dyeing curtains, 6.25	207 35
J. & J. L. O'Malley: Repairing furniture, laying carpets, etc	124 58
J. Kay, Son & Co: Rugs, screen and furniture 130.27: W. Junor: Glassware, etc, 37.72	167 99
T. Eaton Co: Furnishings, 47.69: McDonald & Willson: Furnishings, 19.53	67 22
J. B. Smith & Sons: Lumber, etc, 102.98: Stewart & Wood: Glass, etc, 5.28	108 26
Aikenhead Hardware Co: Hardware, etc, 96.13: Jas. Robertson & Co: Castings, etc, 36.39.	132 52
Dominion Radiator Co: Castings, etc, 1.15: Toronto Brass Mf'g Co: Castings, 2.50	3 65
S. Stockwell: Castings, 1.20: Fenson Elevator Co: Repairing elevator, 2 20	3 40
Purdy Mansell & Co: Fire pots, gaskets, etc, 33.65: Steamfitting: 16.90	50 55
Toronto Electric Light Co: Material and labor *re* Conservatory, 9.15: Supplies, 9 25	18 40
Rogers Electric Co: Supplies, 10.65: Can. General Electric Co: Supplies 25.80	36 45
McDonald & Willson: Supplies, 2 85: McKenzie & Co: Framing pictures, 8.50	11 35
Roberts & Son: Framing pictures 2.25: Gutta Percha & Rubber Co: Hose & tarpaulin, 16.75	19 00
D. Pike Co: Flags and repairs to awnings, etc, 67.50: bunting, flags, etc, 40.25	107 75
Steele Briggs Seed Co: Seed, etc, 81.23: Spilling Bros: Tobacco stems, 2.00	83 23
Wheeler & Bain: Clearing snow from roofs, 6.90: P. Dalton: cl'rg snow from walks, 90.00	96 90
J. Cowan: Cleaning chimnies	16 15
Ontario Compressed Air & Dustless House Cleaning Co: Cleaning carpets, rugs, etc	129 70
Sundry Newspapers: Advtg. *re* fuel, 6.00: V. P. Fayle: Expenses weighing coal, 1.50	7 50

NEW PARLIAMENT BUILDINGS ($34,583.27.)

A. M. Wickens	.. Ten months'	salary as	Engineer and Boiler Inspector	1,000 00
Thomas Burns	.....Twelve do		Assistant Engineer	720 00
R. J. Griffiths	..... do		Fireman	540 00
John Bennett	..... do		do	540 00
S. Pears	..... do		do	540 00
Robert Lore	.....Four do		do (Temporary)	180 00
G. W. Franks	.....Twelve do		Elevator Attendant	550 00
M. J. O'Driscoll	.....Four do		do	183 00
Richard Power	.....Eight do		do	367 00
Robert Kilgour	.... Twelve do		Hall Porter and Messenger	500 00
W. Davidson	..... do		do do	550 00
Daniel Dalton	..... do		do do	550 00
D. Harrington	..... do		do do	550 00
S. Dunbar	.... do		Night Watchman	650 00
E. R. Lucas	..... do		do	650 00
J. W. Montgomery	.. do		Attendant and Messenger	550 00
J. W. Houston	..... do		Superintendent of Grounds	250 00

G. Forester: Elevator attendant, 46.50: E. A. Bishop: Acting night watchman, 132.00.	178 50
E. A. Bishop: Cleaning windows	36 00
Pay lists :—Wages, carpenters, bricklayers, steamfitters, dusters, laborers, etc	8,808 82
Consumers Gas Co: Gas, 562.71: Water Works Dept: Water, 570.96	1,139 67
Toronto Electric Light Co: Power, 405.93: light, 4,099 66	4,505 59
Canada Ice Co: Ice	286 30
Wm. McGill & Co :—	
1,096 tons 250 lbs pea coal at 4.55 per ton, 5,010.34:	
582 tons 275 lbs pea coal at 5.00 per ton, 2,915.49: 6 tons stove coal at 5.32, 31.91:	
bagging, 1.50	7,959 24
J. B. Smith & Sons: Lumber, etc, 39.28: Seamen, Kent & Co: Ladder tape, 15.00	54 28
Aikenhead Hardware: Hardware, 132.50: Rice Lewis & Son: Hardware, 45c	132 95
G. Pearsall: Hardware, 42c: Maguire Bros: Cement, 3 00	3 42
Jas. Robertson Co: Castings, 258 04: Polson Iron Works, Castings, 44.74	302 78
Dominion Radiator Co: Radiators, etc, 50.96: Geo. Sinclair: Blacksmithing, 8 60	59 56
J. J. O'Hearn: Painting, reglazing, etc, 33.65: M. O'Connor: Painting, reglazing, etc, 55 27	88 92
Power Bros: Galvanized iron work, 46.34: M. Walsh: Plastering, 28.95	75 29
Geo. Duthie & Son: Clearing snow from roofs, 85.20: repairing roofs, 123.15	208 35
D. Pike Co: Repairing flags, 2.50: repairing awnings, 42.50	45 00

REPAIRS AND MAINTENANCE.—*Continued.*

NEW PARLIAMENT BUILDINGS—*Continued.*

Can. General Electric Co: Supplies, 23.25 Toronto Electric Light Co: Supplies, 5.75.. $ 29 00
Rogers Electric Co: Supplies, 36.38: Keith & Fitzsimons Co: Supplies, 3.50..... 39 88
Toronto Auer Light Co. Supplies, 3 00: Jas. Robertson Co: Plumbers' tools & sup., 321.56. 324 56
W. Alexander: Cleaning clocks, 1.50 C. W. Coleman: Cleaning clocks, 2.00 . 3 50
Toronto Elevator Co: Repairing elevators, 94.87: Otis Elevator Co: Repg. elevators, 66.58. 161 45
W. Beers Weather strip, 49.50: Independent Oil Co Boiler compound, 43.75 ..... 93 25
Luxfer Prism Co: Pipe cover, 4.12: Dom. Butchers Supply Co: Metal polish, 2.50 .. 6 62
C. Rogers & Sons Co. Venetian blind tape..... 14 55
Furnishings:—
Nerlich & Co, 10.80. Fletcher Mfg Co, 50.50: United Factories, 14.30:
Imperial Varnish Co. 58.30: H. W. Nelson & Co, 5.40: Wheeler & Bain, 5.50:
Grant Hamilton Oil Co, 36.30 Michie & Co, 11.25: Queen City Oil Co, 1.25:
N. L. Piper Railway Supply Co, .65: H.P. Eckhardt Co, 55 36: A. Currie,.20:
McDonald & Willson, 7.60: T. Eaton Co, .13 ..... 257 54
L. K. Cameron: Toilet paper, 48.50 McDonald & Willson: Gas range, etc, 73.21 ..... 121 71
T. Kelvington: Plants, vines, etc, 114.00: J. A. Simmers: Bulbs, seeds, etc, 328.28.... 442 28
Brown Bros. Co: Trees, 7 70: C. H. Gadd: Palms, 113.00 ..... 120 70
J. Davis & Son: Flower pots and pans, 45 00: M Thomas Gravel, 76.56..... 121 56
J. Maraney: 200 yards sod, 14.00: W. Hill: Soil, 10 00..... 24 00
Beatty Cycle Co: Tires for messenger's bicycle 10 00
Cummings & Sellers: Hats and caps for messengers, porters, etc..... 26 00
C. P. Industries: Clothing for messengers, porters, etc 204 00
V. P. Fayle: Expenses weighing coal, 10.00: Sundry newspapers: Adv. *re* fuel, 18.00. 28 00

NEW PARLIAMENT BUILDINGS, EXCLUSIVE OF DEPARTMENTS. ($2,188.96).

J. & J. L. O'Malley: Upholstering and repairs..... 399 79
C. Rogers & Sons Co.. Furniture, 123.08: lockers, telephone box, etc, 225 50:
upholstering, etc. 193.40: members desks, 72.00 speaker's chair and stool, 175.00: 788 98
A. Britnell: Dictionery stand, 2.00 L. Rawlinson: Pedestal, 5.50..... 7 50
J. Kay, Son & Co: Carpet, 8.44 R. Simpson Co: Carpet, mat, etc, 17.23..... 25 67
J. B. Smith & Sons: Boxes, 17.50: book case, 51.00: case, 10 50 .. . . 79 00
Forbes Roofing Co: Felt, 2.50: Carbon Studio: Photo and frame, 5.50 ..... 8 00
Cobban Mfg Co: Mouldings, 1 05: McKenzie & Co: Hanging pictures, 3.05..... 4 10
Furnishings:—
Nerlich & Co, 54.37: Fletcher Mfg Co, 35.70: H. P. Eckhardt, 97.88:
Rice Lewis & Son, 6.00: Stormont Mfg Co, .80: McDonald & Willson, 5.65:
W. A. Murray & Co,138.99: Worsley & Bell, 1.60: Hooper & Co, 6.90..... 347 89
Gowans Kent & Co: Crockery, glassware, etc, 81.70: Tor Silver Plate Co. Silverware,29.37 111 07
Goldsmiths' Stock Co: Clocks, 17.66 T. L. Hicks: Bell hanging, etc, 44.75..... 62 41
J. Turner & Son: Repairing mangle,5.30: Gurney Stove Co: Fitting range, 1.80.... 7 10
Keith & Fitzsimons Co: Electric fittings, 33.40: Rogers Elec Co: Electric fittings, 24.79: 58 19
M. O'Connor: Painting, papering, reglazing, etc..... 279 26
J. J. O'Hearn: Staining, etc, 5 00: Common Sense Mfg Co: Chemicals,1.00..... 6 00
F. T. Proctor: Repairing clocks..... 4 00

OLD PARLIAMENT BUILDINGS. ($805.39).

Consumers' Gas Co: Gas, 80 01: Water Works Dept: Water, 17.68..... 97 69
J. B. Smith & Sons: Lumber, 6 49: Aikenhead Hardware: Lock, .90..... 7 39
J. J. O'Hearn Re-glazing, 1.30: F. W. Cattle: Paper hanging, 3 50..... 4 80
Gurney Foundry Co: Castings, 66. Wheeler & Bain: Stove, etc., 9.20..... 9 86
J. H. Milnes & Co: 7 tons 150 lbs. soft coal at 4.75 per ton, 32 97: removing coal, 3.50 36 47
W. McGill & Co: 5 cords of wood at 5 40 per cord, 27.00: 1 cord pine wood, 4.20:
2½ cords wood at 6.75 per cord, 16.14 Cutting wood, 3.00:
7 tons 260 lbs nut coal at 6 20 per ton, 45 71: Bagging coal, .25..... 96 30
Jas. Robertson Co: Boiler tank, etc, 20.46 J. Stewart & Son: Soap, 1.00..... 21 46
R. Simpson Co: Supplies, 1.50: Wheeler & Bain Clearing snow from roofs, 9.00 ... 10 50
J. Malloy: Clearing snow from walks, 120.00: Mrs. Chase: Office cleaning, 246.00..... 366 00
Pay lists: Wages carpenters, labours, etc 154 92

ATTORNEY-GENERAL'S DEPARTMENT. ($301.40).

Office Specialty M'f'g. Co: Metal case, 26.00: document boxes, 9.60..... 35 60
J. & J. L. O'Malley: Repairing furniture. 2 85: Aikenhead Hardware: Hardware, 6.15 9 00
J. Bruce: Frame for portrait, 12 00: J. J. O'Hearn: Staining, 3.00 ..... 15 00
Mrs. O'Connor: Office cleaning, 191.00 Stormont M'f'g. Co: Wall cleaners, .80..... 191 80
C. W. Coleman: Clock, 10.00 cleaning and repairing clocks, 2.00 ..... 12 00
Office Specialty Mfg. Co: Book case—Insurance Branch 38 00

REPAIRS AND MAINTENANCE.—*Continued.*

CROWN LANDS DEPARTMENT. ($2,779 34).

J. & J. L. O'Malley: Cleaning and relaying carpets, 13 99: repairing furniture, 12.71... $ 26 70
J. B. Smith & Sons: Book cases and tables 89 63
Office Specialty M'f'g. Co: Document fyles, 1,119.50: document cabinet, 82.50: office furniture, 226.55: roller book case, 210.00: steel map case, 425.00..... 2,063 55
J. Kay Son & Co: Rug, felt, etc, 34.30: T. Eaton Co: Carpet, rug, etc, 79.26..... 113 56
Matthews Bros: Picture frames, 1.50: MacKenzie & Co: Picture frames, 2.50..... 4 00
Fletcher M'f'g. Co: Furnishings, 1.05: Ryrie Bros: Furnishings, 15.00 ..... 16 05
Galvanic Battery Works: Repairing bells and battery, 3.85: Repairing 'phone, 11.55.. 15 40
Aikenhead Hardware: Locks, etc, 1.55: Fletcher M'f'g. Co: Deed boxes, 2.25..... 3 80
J. J. O'Hearn: Painting walls, etc, 109 62: M. O'Connor: Oiling floor, 5.73 ..... 115 35
Mary Wilson: Office cleaning and supplies, 328.00: Stormont M'f'g. Co: Wall cleaners, .80 328 80
F. T. Proctor: Repairing clock..... 2 50

PUBLIC WORKS DEPARTMENT ($680.86).

J. & J. L. O'Malley, cleaning and laying carpet 9 75
C. Rogers & Sons Co.: desk, 17.00; typewriter chair, 7.50 ..... 24 50
Office Specialty Mfg. Co.: document cases, 47.50; metal cases, 80.00..... 127 50
G. T. Railway Co.: freight charges, .82; J. B. Smith & Sons: lumber, etc., 12.96..... 13 78
Aikenhead Hardware: lock, 1.10; M. O'Connor: oiling, etc., 15.30 ..... 16 40
J. J. O'Hearn: lime, whiting, varnishing, etc., 46.50; J. & J. Taylor, repairing safe, 1 75 48 25
Stormont Mfg. Co.: wall cleaner, .80; Fletcher Mfg. Co.: furnishings, 6.15 ..... 6 95
Mrs S. Lavery: office cleaning, 325.00; Mrs. B Robson: office cleaning, 96.00 ..... 421 00
M. A. McNulty: scrubbing, 1.50; Mrs. Rockwood, scrubbing, 10.23..... 11 73
W. Alexander: cleaning and repairing clock 1 00

TREASURY DEPARTMENT ($733.82).

Office Specialty Mfg. Co.: binding cases, 6 21; label holders, 3.00; cabinet indexes, 12.00; document cases, 32.00; cabinet, 25 00 .... 78 21
J. & J. L. O'Malley, linoleum, etc, 219.71; foot rest and stool, 8.75. ..... 228 46
J. Kay, Son & Co.: mat, 1 50; R. Simpson: mat and rugs, 8.50.. ..... 10 00
T. Eaton Co.: rug, etc., 4 35; Rogers Electric Co.: bracket motor, etc., 13.80 ..... 18 15
C. Rogers & Son Co.: desk stool, 4 00; office chair, 12.00; repairing furniture, 7.50; cushion, 4 00 ..... 27 50
J. B Smith & Sons: fittings in basement, 98.00; J. J. O'Hearn: lime washing, 12.80... 110 80
J. & J Taylor: repairing locks, etc., 11.20; Aikenhead Hardware: door holders, 1.85 13 05
C O. Brimer: to pay for gas mantel, .25; Stormont Mfg. Co.: wall cleaners, .80..... 1 05
Mrs. C. Amsden: office cleaning, 240.00; Fletcher Mfg. Co.: furnishings, 5.60..... 245 60
J. P. Mill: cleaning clock 1 00

SECRETARY'S DEPARTMENT. ($1,334 43).

Office Specialty Mfg. Co.: fyle drawers, 263.00: document cabinet, 52.00: transfer cases, etc., 66.73 ..... 381 73
Remington Typewriter Co.: Cabinet, 30.00 Can. Typewriter Co.: desk and chair, 32.50.. 62 50
C. Rogers & Sons Co.: office chair, 13.00: repairing furniture, 2 00 ..... 15 00
J. B. Smith & Sons: pigeon holes, 65.70: McDonald & Willson: lamp and fittings, 9.97 75 67
Park & Co: photos and frames, 10 00: Carbon Studio: photo and frame, 5.00 ..... 15 00
R Hall & Son: carpet, rugs, etc., 132.45: Aikenhead Hardware: locks, 1.60 .... 134 05
J. & J. L. O'Malley: linoleum, felt, etc., 247.28: upholstering, 6.45: cleaning and laying carpets, 7.12 ..... 260 85
Bell Telephone Co.: repairing call bells, .65: T. L. Hicks: fitting electric bells, 26.60 27 25
Rogers Electric Co.: bell wire do etc., 9.94: J. J. O'Hearn: lime washing 19.36 29 30
Stormont Mfg Co.: wall cleaner, .50: A. Ryan: office cleaning, 300.00..... 300 50
Mrs. Carey: scrubbing, 18 50: Mrs. Spelling: scrubbing, 5.00..... 23 50
Supplies for cleaning: Wheeler & Bain, 2 22: Eby Blain Co., 2.90: T. Eaton Co., .46 5 58
C. W. Coleman: cleaning and repairing clocks 3 50

DEPARTMENT OF AGRICULTURE ($511.93).

Office Sp'ty Mfg. Co: Cabinet, chairs, etc. 35.55; G. N. Reynolds & Co: Typewri'r chair, 5.75 41 30
L. Rawlinson: book-case, 48.00; T Eaton Co.: desk. 15.50..... 63 50
J. B. Smith & Sons: Case of pigeon holes, 80.00; J. & J. L. O'Malley, linoleum, 30.82 .. 110 82
Rogers Electric Co: Portable lamp, 1.50; Keith & Fitzsimons Co: Portable Lamp, 7.00 8 50
R. A L. Gray & Co: Repairing bells, 6.95; Power Bros.: Galvanized iron work, 10,26 17 21
J. P. Mill: Clock, 1.00; Fletcher Mfg. Co: Supplies for cleaning, 2 75 ..... 3 75
Stormont Mfg. Co: Wall Cleaner. 80; J. J. O'Hearn, Shellacing, 2.05. ..... 2 85
Mrs. Roberton: Office cleaning, 260.00; Mrs. McNulty: Scrubbing, 4.00..... 264 00

REPAIRS AND MAINTENANCE.—*Continued.*

EDUCATIONAL BUILDINGS ($9,524.08).

W. J. McCleary : Twelve months' salary as Carpenter ..... $ 600 00
C. Hill : Services as night fireman, 22.50 : J. B. Devins : Services as night fireman, 202.50 225 00
H. Blunt : Work on grounds, 472.00 : E. Stone: Substitute Janitor, 3.00 ..... 475 00
Pay lists wages, carpenters, bricklayers, laborers, etc..... 173 08
Geo. Ringham: Clearing snow from roof, 71.10: Consumers Gas Co: Gas, 135.90..... 207 00
Water Works Department: Water, 665.15: Toronto Electric Light Co: Light cur't 438.59 1,103 74
Knickerbocker Ice Co: Ice, 4.65 : People's Coal Co 2 tons nut coal at 4 48, 8.96..... 13 61
Wm. McGill & Co: 7½ tons stove coal at 5.32 ton, 39.90 : 4½ tons nut coal at 5.32 ton, 23.94 :
2 tons stove coal at 6.20 ton, 12.40 : 3 tons nut coal at 6.20 ton, 18.60 :
308 tons 625 lbs grate coal at 5.10 , 1.572.43 : 145 tons 350 lbs grate coal at 6.00, 871.05 :
bagging coal, 2.50 : 1 cord wood, 6.75.. ..... 2,547 57
J. H. Milnes & Co : 30 tons 1360 lbs soft coal at 4.75 ton, 145.73 :
23 tons 1800 lbs soft coal at 4.15 per ton, 99.20 : 2 cords wood at 6.50 per cord, 13.00 :
10 cords pine at 3.50 per cord, 35,00 : 3½ cords pine at 3.75 per cord, 13.15..... 306 08
Sundry newspapers: Advertising re fuel, 15 00 : J. B. Smith & Sons: Pedestals, 33.00.. 48 00
Can. Office and School Furniture Co : Settees, 21.60: desks, 12.00 ..... 33 60
C. Rogers & Sons Co : Office furniture, 225.25 : book rack, 8.65 : repairs, etc, 14.75 248 65
M. Bravin : Repairing chairs, 2 50 : J. & J. L. O'Malley : Rent of chairs, 14.00 . ... 16 50
Mason & Rich Piano Co : Rent of organ, 7.00 : tuning pianos, 10 00 ..... 17 00
Gourlay, Winter & Leeming : Piano (balance) 100.00: cartage of pianos, 12.00 ..... 112 00
Ambrose Kent & Co : Clock, 5 50 : care of clocks 60.00 : J. P. Mill : Rep'ing clock, 2.40 67 90
Furnishings :—T. Eaton Co, 104.64 : Fletcher Mfg Co., 55.27 : W. H. Lee, .25 :
Grant Hamilton Oil Co., .50 : Woltz Mfg. Co., 18 00 : F. A. Whaley, 2.75 :
McDonald & Willson, 15.73 : G. McFarlane, 5.60 : Map and School Supply Co., 5.40 :
J. Taylor & Co., 9.69: Russill Hardware Co , .84 : Imperial Varnish Co., 7.00 : 225 67
Chemical Compound Co: Boiler comp'd, 36.60 : R. P. Powell: Cleaning carpets, etc 7.05 43 65
J. & J. L. O'Malley: Clean'g, lay'g carp's, 3.00: Carpet Clean'g Co: do 5.30 8 30
W. Notman & Son : Picture of Prince and Princess of Wales, 75.00 : photos, 2.00..... 77 00
J. Biehm: Water color painting, 12.50: McColl Bros Co: Floor oil, 39.85..... 52 35
E. Harris Co. Glass, 12.71: Cannon Granite Co: Marble work, 3.00 ..... 15 71
Castings, etc : Aikenhead Hardware 91.12: James Robertson Co, 96 20
Hamilton Engine Co, 6.25: George Pearsall, 5.65: A. Earsman & Son, 40.90 240 12
Eureka Mineral Co: Covering gaskets, 5.20: J. Inglis & Sons: Repairing boiler, 97.42 102 62
Shipway Iron Works: Locksmithing and iron work, 79.90: C. Marsh: Painting, etc, 272.11 352 01
G. Ringham: Galvanized iron work, 60.75: M. Walsh: Plastering and lime washing, 83.95 144 70
J. B. Thompson: Whitewashing, 68.00: painting and reglazing, 202.90: paperhanging, 77.14 348 04
Bell Telephone Co: Repairing buzzers, 1.35: American Tent Co: Repairing flag, .50 .... 1 85
C. R. Farron: Blacksmithing, 3.25: J. B. Smith & Sons: Lumber, etc: 262.87 ..... 266 12
Mullen & Muir: Papering, 122.00: John Duncan: Paperhanging, 6.00 ..... 128 00
Power Bros: Galvanized iron work, 2.82: Maguire Bros: Lime and cement, 10.35..... 13 17
W. R. Hunter: Cement, .75: Dominion Radiator Co: Radiator, 33.35: repairs, 6 53..... 40 63
C. T. Smith: Decorating building, 11 15: Alfred Gardener & Co: Concrete walk, 19.50 30 65
Grounds :—Gutta Percha & Rubber Mfg Co: Hose, 9.05 : G. Duthie & Son: Gravel, 25.00 34 05
C. P. Industries: Plants, 400.00: T G. Foster & Son: Plants, 4 00 404 00
Brown Bros Co: Trees and vines, 36.50: W. T. White: Trees and vines, 4.50 41 00
J. A. Simmers: Seeds, 4.25: Wm. Rennie: Bulbs and seeds, 189.04..... 193 29
J. Sercombe: Sod, 5.00: J. Davis & Sons: Flower pots, 11.00..... 16 00
M. J. Doran..Fertilizer, 28.00: L. J. Vair: Fertilizer, 1.45..... 29 45
Geo. Pearsall: Garden tools and repairs, 18.06: J. Falvey: Cartage, 48.00..... 66 06
W. J. Pecard: Cartage, .50: W. Harris: Cartage, 9.75: Tor. Railway Co: Car tickets, 2.25 12 50
Dominion Transport Co: Freight charges, 3.50: C. P. Railway Co: Freight charges, .70 4 20
G. T. Railway Co: Freight charges, .70: Geo Vair: Travelling expenses selecting trees,5.70 6 40
L. McCorkindale: Paste, etc, 10.05: services re concerts, 16.00..... 26 05
Supplies for cleaning:—R. Gilpin, 25.00: T. Williamson, 25.00:
Mrs Bella Simpson, 25 00: L. McCorkindale, 62.50 ..... 137 50
Sundry women Scrubbing, 213.26: T. Williamson: Washing towels, 31.00..... 244 26
L. McCorkindale: Washing towels 20.00: Manton Bros: Kindergarten Xmas tree, 4.00.. 24 00

MISCELLANEOUS ($3,750.00).

B. O'Byrne.....Twelve months' salary as General Clerk of Works..... $1,200 00
P. J. Crotty ..... do do Carpenter 750 00
M. McBrearty ..... do do Steamfitter 1,000 00
M. J. Quinn .... do do Plumber 800 00

NORMAL SCHOOL, OTTAWA ($2,675.42).

Ottawa Gas Co: Light, 178.80: heating, 2.10: Water Works Dept: Water, 170.73.... 351 63
Ottawa Electric Light Co: Light current, 21.56: carbons, 3.50..... 25 06
John Haney: 30 cords wood at 5.00, 150.00: 30 cords pine at 2 00, 60.00 ..... 210 00
Sundry newspapers: Advertising re fuel, 6.00: John Casey: Repairing boiler, 17.57..... 23 57
J. J. Murphy: Repairing roofs, 136,00: W. J Campbell: Repairing boilers, 5 95 ..... 141 95
R. Lester: Repairing boiler, 48.42: Harris, Campbell & Boyden Co: Repairing desks, 183.75 232 17

REPAIRS AND MAINTENANCE.—*Continued*

NORMAL SCHOOL, OTTAWA.—*Continued.*

A. H. Bertslinger: Installing and removing foot lights ..... $ 6 00
R. Lester: Cement, stone, etc, 37.77: cartage, 14.09: mason work, 163.35..... 215 21
Butterworth & Co: Hardware and tools, hose, etc, 89 63. Bower Ellacott & Co: Keys, .30.. 89 93
W. Howe: Glass, 1.66: John McKay: Painting and reglazing, etc, 7 71 ..... 9.37
Stephen Bros: Whiting, 3.36: W. S. Howe: Painting and calsomining, 692.23..... 695 59
Furnishings:—Bryson Graham & Co, 17.58: R. T. Shillington, .25: Grant Bros., .12.. 17 95
C. Ross Co: Carpet, mats, etc, 111.22: J. L. Orme & Son: Music stand and piano stool, 5.25 116 47
J. Wilson & Co: Frames, pictures, etc, 78.00: F. A. Jarman: Pictures and frames, 13.85 91 85
Graham Bros: Seeds, etc, 10.02: flower pots, 1.67: soil, 2.00 ..... 13 69
M. Charlebois: Trees, 3.00: C. Scrim: Plants and vines, 74.45 ..... 77 45
J. Mitchell: Manure, 8.00: T. Nicholson: Cutting grass, 14.00..... 22 00
P. Shea: Rolling grounds, 6.00: J. Mooney: Carting ashes, etc, 45.20..... 51 20
O. Macdonald: Supplies for cleaning, 50.00: Mrs A. Brown: Scrubbing, 2.00..... 52 00
Mrs. Ryan: Scrubbing, 25.75: Pykes Steam Laundry: Washing towels, 1.23 ..... 26 98
J. Higgerty: Substitute janitor, 96.25: M. O'Meara: Substitute janitor, 7.50 ..... 103 75
Thos. Smith: Care of clocks, 60.00: R. P. Fairbairn: Travelling expenses, 41.60..... 101 60

NORMAL SCHOOL LONDON ($1,161.11).

London Electric Co: Light current, 73.98: power current, 50.00 ..... 123 98
Water Works Commissioners: Water, 124.56: City Gas Co: Gas, 17.10..... 141 66
Sundry newspapers: Advertising *re* fuel, 5.00: Westland Bros: Glass and reglazing, 5.80. 10 80
John Purdom: Lumber, carpentering, etc., 119.33: W. Gerrie: Lumber, 5.15..... 124 48
T. L. Partridge: Castings, etc., 40.44: Dennis Wire & Iron Co: Castings, .50 ..... 40 94
Furnishings:—Anderson & Nelles, 28.60: Waggoner Ladder Co., 7.30:
Can. Furniture Co., .65: M. Masuret & Co., 12.58: A. Screaton & Co., 7.50:
London Hardware Co., 3.00: W. Stevely & Son, .65: J. Cowan & Co., .60:
J. Sussex, 1.00: Alex. Johnston, .75: W. A. Brock, .25 ..... 62 88
O. B. Graves: Picture frames, 22 50: A. McInnis: Grass seed, 8.50 ..... 31 00
J. Gammage & Sons: Bulbs, 25.05: Jas. Reid & Co: Garden tools, hardware, etc., 61.47. 86 52
John Sussex: Grindstone, 6.75: J. Armitage: Work on grounds, 6.00..... 12 75
J. C. McArthur: Rolling grounds, 2.00: T. H. James: Rolling grounds, .50..... 2 50
Geo. Gregory: Cartage, 25.50: Michigan Central Railway Co: Freight charges, .45.... 25 95
Mrs. Macfie: Cleaning, etc., 212.19: washing towels, 15.85 ..... 228 04
Parisian Steam Laundry: Washing screen, .75: W. Berry: Cleaning windows, 52.00.. 52 75
W. J. Anderson: Services, night fireman, 143.71: watchman, 56.25 ..... 199 96
London Carpet Cleaning Works: Cleaning carpets 13 50
A. M. Wickens: Travelling expenses inspecting boilers 3 40

SCHOOL OF PRACTICAL SCIENCE ($5,154.02).

Pay lists: Wages, carpenters, plumbers, laborers, etc 1,301 85
Power Bros: Galvanized iron work, 47.95: E. H. Roberts: Locksmithing, 22.50 ..... 70 45
J. E. Ellis Co: Locksmithing, 3 00: M. O'Connor: Painting, reglazing, etc., 395.39... 398 39
J. J. O'Hearn: Painting, reglazing, etc., 195.73: Water Works Dept: Water, 137.92.. 333 65
Toronto Electric Light Co: Light current, 148.01: power current, 94.08..... 242 09
Consumers' Gas Co: Gas, 349.20: cinders, 1.40..... 350 60
W. McGill & Co: 2 cords wood at 5.40, 10.80: 2 cords wood at 6.75, 13 50:
1 cord pine, 5.25: cutting wood, 1.00: 2 tons 1.900 lbs. egg coal at 6 20, 18 29:
23 tons 100 lbs. soft coal at 8.50, 195.93: 840 tons 1.350 lbs. grate coal at 6.00, 844.05. 1,088 82
Sundry newspapers: Advertising *re* fuel, 6.00: V. P. Fayle: Meals, weighing coal, 1.75.. 7 75
Furnishings:—Swan Bros., 24.59: Map & School Supply Co., 1.50:
Fletcher Mfg. Co., 33.00: Aikenhead Hardware, 29.28: J. Macdonald & Co., 7.92.. 96 29
L. K. Cameron: Toilet paper, 10.00: Grant Hamilton Oil Co: Floor oil, 40.00..... 50 00
J. Kay, Son & Co: Shades and screens 39 15
J. & J. L. O'Malley: Cleaning carpet 3 87
Dominion Radiator Co: Castings, 8.40: Jas. Robertson Co: Castings, 28.97..... 37 37
Maguire Bros.: Cement, brick, sand, etc., 28.85. J. B. Smith & Sons: Lumber, 129.46. 158 31
W. Wanty: Rolling lawn, 14.80: cartage, 10.40: W. J. Graham: Washing towels, 13.48. 38 68
Sundry women: Scrubbing..... 11 75
J. E. Berkeley-Smith: Ground rent..... 925 00

AGRICULTURAL COLLEGE AND FARM ($7,521.42).

Guelph Light and Power Co: Light, 1,352.56: Cray Oil Co: Oil, 17.83..... 1,370 39
Queen City Oil Co: Oil, 25.12: M. F. Cray: ½ cord wood, 3.30..... 28 42
Castner, Curran & Bullitt: 141 tons 50 lbs. run of mine, coal at 3.50 per ton, 495.25:
487 tons 1,945 lbs, run of mine, coal at 3 60 per ton, 1,758.24 ..... 2,253 49
J. Kennedy: 14 tons 660 lbs. coal, 103 49: 2 tons 800 lbs. stove coal, 10.74:
1,050 lbs. cannel coal 4 20 ..... 118 43
Guelph Water Works: Water, 9.60: pipe, etc., 9.71 ..... 19 31
Guelph Cartage Co: Cartage of coal, 248.43: Collector Customs: Duty on coal, 222.16.. 470 59

REPAIRS AND MAINTENANCE.—*Continued.*

AGRICULTURAL COLLEGE AND FARM.—*Continued.*

G. W. Brown & Co: Repairing roof, 90.14: W. Sunley: Galvanized iron work, 45.27.. $ 135 41
J. Groom: Locksmithing, 2 10: H. Harper: Locksmithing. .35 . . . . . 2 45
H Smith: Tinsmithing, etc , 1.25: A. Rumford: Tinsmithing, etc., 19.29 ... . 20 54
H. Occomore: Tinsmithing, etc 41 33
M. O'Donnell: Carpentering, painting, etc 100 22
A. C. Calder: Carpentering, labor, etc., 7.21: J. Crawford: Labor, 1.10..... ... 8 31
T. A. Cornie: Painting, papering, etc., 298.59: M. E. Snyder: Labor, 13.02..... 311 61
P. Martin: Masonry, 6.95. J. J M honey: Plastering, etc , 13.12..... 20 07
Joseph Wood. Plastering, etc., 5.80: Geo. Duncan: Whitewashing, 68.00.... ..... 73 80
H. & D. Sallows: Blacksmithing, 22.27: Guelph Pavement Co: Repairing walk, 2.00.. 24 27
Castings, repairs, etc. :—A. Robertson & Son, 37 41: T. Foster, 24.55:
Reid & Ross, 27.70: W. C. Wilson & Co., 54 54: A. Green, 1.20:
J. Morrison Brass Mfg. Co., 24.55: R. W. Phillips, 1.50 Jas. Robertson Co., 9.25:
J. Crowe, 14.74: J. Steele, 5.00: S & G Penfold, 2 25 ... . 202 69
G. B. Morris: Hardware, etc., 341.01: J. M. Bond & Co. Hardware, etc., 83 12..... 424 13
LeRoy Chemical Mfg. Co: Boiler compound 74 10
Mineral Wool & Asbestos Co: Waste 16 50
Eureka Mineral Co Hose, 4.75: H. A. Clemens & Co: Tank, door, etc., 17.50 .... 22 25
J. Kennedy: Pipe, lime, etc., 12.05: Guelph Iron & Steel Co: Fire brick, 7.88.... 19 93
F. Schafer: Tile, 15.00: R. Stewart: Lumber, etc., 187.43 .. .. 202 43
Can. Carriage Co: Road wagon, 45.80: Moorehouse Mfg Co: Awning, 3.75..... 49 55
Harness, repairs, etc :—Geo. Beattie, 1.65: J. Sweeney, .10: J. A. Tovell, 45.05:
G. J. Thorpe, 1.70 ..... 48 50
Bell Telephone Co: Poles for system, 10.00: J. U. Pequegnat: Repairing clock, .60.... 10 60
G. D. Pringle: Repairing clocks, 1.10: Savage & Co: Clocks and repairs, 23.50 ..... 24 60
C. P. Railway Co: Freight charges, 1.50: G. T. Railway Co: Freight charges, 15.02.. 16 52
Can. Express Co: Charges, 8.55: Dom. Express Co: Charges, 2.05 ... . 10 60
J. Reid: Cartage, .25: Collector Customs: Duty, .30 55
Bank of Montreal: Charges on draft, 1.00: T. P. Carter: Cutting ice, 18.75 ..... 19 75
G. M. Alliston: Sawdust 2 00
Furniture :—J. M. Struthers, 16 85: Globe Furniture Co.. 2.00: Library Bureau, 35.20:
Ainsworth & Menzies, 25.00: Can. Furniture Co., 39.18: Jno. Davidson, 75.75.... 193 98
Bennett Furniture Co: Desks, 24.80: Office Specialty Co: Office furniture, 23 25 ... 48 05
T. Eaton Co: Office furniture, 41.00: Bailey Cutlery Co: Cutlery, 4.98... ..... 45 98
T. J. Day: Wall paper, 21.64: C. L. Nelles: Wall paper, 5.19..... 26 83
McColl Bros: Oil and leather sheeting..... 57 85
J. W. L. Forster: Portrait late W. E. H. Massey 250 00
Furnishings: J. A. McCrea, 64.55; Alex. Stewart, 42.45; A. A. Rumford, 8.20;
G. B. Ryan & Co., 250.38; C W. Kelly, 2.75; Wood's Fair, 25.32; S. Rudd, 1.45;
Van Tuyl & Fairbank, 3.00; J. Aikens, 60c; W Sunley, 25c; Geo. Sparrow, 13.45;
D. E. Macdonald & Bro., 54.85; R. Mitchell, 137.16; C L. Nelles, 6.83;
Stevely & Son, 22.50; P. F. Maddock, 3.10; T. Eaton Co., 73c; W. C. Goetz, 1.50;
Geo. Lugsdin & Co., 40c; J. D McKee, 20c; Waters Bros , 16.39;
E. R. Bollert & Co., 51.93: Seamen, Kent & Co., 6 65; M. W. Doherty, 50c;
Raymond Mfg. Co., 30c; Mrs. McCallum, 1.00; McCormack & Robertson, 1.00;
L. W. Roy, 3.00; E. Henry, 5c; T. J. Copeland, 30c; Mahoney Bros., 1.00;
G. A. Richardson, 60c; F. C. Meyer, 14.00; Rice Lewis & Son, 6.50;
Ambrose Kent & Sons, 3.00; W. McLaren & Co., 3.50; J. Hohenadel, 6.00..... 755 39

OSGOODE HALL. ($9,753.60)

Terence Cunerty ...Thirteen months' salary as Engineer..... 755 00
C. Sendell ..... do do Fireman 390 00
M. McCarthy ..... .Five do Night fireman..... 200 00
Kate McKenna .....Thirteen do Housekeeper 320 00
Pay lists: Wages carpenters, bricklayers, plumbers, laborers, etc..... 1,824 85
Consumers Gas Co: Gas, 879.84: Water Works Department: Water, 251 11 ..... 1,130 95
Knickerbocker Ice Co: Ice, 68.05: J. H. Milnes & Co: 57.650 tons soft coal at 4.75, 272.29 340 34
Wm. McGill & Co: 18 cords wood at 5.40, 97 20: 20 cords wood at 6.25, 125.00:
1 cord wood, 6.76: 5¾ cords pine at 4.20, 24 15: 7 cords pine at 4.75, 33.25:
3¾ tons stove coal at 5.32, 19 95: 68.1900 tons grate coal at 5.10, 351.67:
354.487 tons grate coal at 6.00, 2,124 60: bagging coal, 94c: cutting wood, 25.38.. 2,808 90
J. B. Smith & Sons: Lumber, etc., 65.88: Aikenhead Hardware: Hardware, 80 91 .. 146 79
Galvanized iron work:—Geo. Duthie & Son, 5 85: Wheeler & Bain, 36.90: Power Bros, 255 82 298 57
J. J. O'Hearn: Painting, papering, reglazing, etc. 507 46
Shipway Iron Works: Locksmithing 42 65
G. S. Holmested: To pay locksmithing, etc , 1.40: J. H. Loftus: Repairing roofs, 56.25.. 57 65
Forbes Roofing Co: Repairing roofs, 179 00. clearing snow from roofs, 72.30 ..... 251 30
M. Walsh: Plastering, 17.00: Independent Oil Co: Boiler compound, 55.34..... .. 72 34
W. Beer: Weather strip, 4.41: Maguire Bros.: Fire brick, sand, etc., 66.79 ..... 71 20
Castings, etc: Gurney Foundry Co., 3.00: Jas. Robertson Co., 73.67: S. Stockwell, 1.12 77 79
C. Rogers & Sons Co: Furniture and repairs, 375.31: J. Kay, Son & Co: Carpets, 94.14. 469 45
J. & J. L. O'Malley: do 21.35: cleaning and laying carpets, 21.44.. 42 79
do Matting, etc., 60.88: Toronto Auer Light Co: Mantels, etc., 4.20. 65 08

REPAIRS AND MAINTENANCE.—*Concluded.* PUBLIC BUILDINGS.

OSGOODE HALL.—*Continued.*

D. Pike Co: Recovering awnings, 30.00: Gutta Percha & Rubber Co: Hose, 9.00	$ 39 00
Furnishings: J. T. Wilson, 82.27: R. H. Lear & Co, 4.50: G. H. Cooper, 15.60: J. Catto & Son, 25.66: Queen City Oil Co., 98c: W. H Sparrow, 8 00: Keith & Fitzsimons Co., 22.90: McDonald & Willson, 3.65: Hargreaves Bros., 2.00	165 56
Cleaning ash pit:—M. Lanagan. 7 33: L. Sheehan, 6.60: W. Hammell, 5.40: S. McBeth, 5.40	24 73
J. Maroney: Carting ashes, 21.60: May Robinson: Cleaning, etc., 213.00	234 60
C. Sutherland Cleaning, etc., 224.80: Jane Booth: Cleaning, 5.00	229 80
T. N. Hopkins: Cleaning chimneys, 10.30: J. E. Ellis Co: Care of clocks and repairs, 10.00	20 30
W. Alexander: Care of clocks and repairs	39 00
Sundry newspapers: Advertising *re* fuel	14 00
V. P. Fayle: Expenses weighing coal	3 50
	10,643 60
Less refund by Law Society for heating and lighting	890 00
	9,753 60
Total Repairs and Maintenance	$91,293 18

PUBLIC BUILDINGS.

ASYLUM FOR INSANE, TORONTO, ($1,242.61).

Addition to Bakery:—	
Geo. Henry & Sons: On account contract, 1,140.00: Purdy, Mansell & Co: Plumbing, 31.20: Angus Macpherson Plumbing and supplies, 19.41	$1,190 61
Geo. Ringham: Repairing roof	52 00

RENEWALS, FURNITURE, FURNISHINGS, ETC., ($3,302.34).

A. McDonald: Timber and shingles, 338.50: lumber, 155.66	494 16
J. B. Smith & Sons: Lumber, sash, etc, 191.65: A. Bryce & Co: Lumber, 337.50	529 15
C. P. Railway Co: Freight charges on lumber	84 51
R. Whillans & Co: Brick, sand and lime	380 86
N. Parent: Bowling alleys, 200 00: J. C. Turnbull: Carpets, etc, 570.74	770 74
Robt. Fair & Co: Carpets, etc, 135.73: R. Hall & Son: Linoleum, 352.75	488 48
Strathroy Furniture Co: Furniture, 338 44: rugs, 216.00	554 44

ASYLUM FOR INSANE, MIMICO, ($1,515.90).

Toronto Laundry Machy Co: Shirt machine, 82.00: washer, ironer, etc, 391.60: washing machine, 292 50: pulleys and shaftings, 56.00: washing machine, 175.50: mangle and extractor, 368.20	1,365 80
J. F. Hanrahan: Travelling expenses inspecting driers, 19.10: steel stays for coils, 20.00: galvanized iron boxes and troughs, 10.00: Royalty on two driers, 100.00	149 10
M. J. Quinn: Travelling expenses	1 00

RENEWALS, FURNITURE, FURNISHINGS, ETC., ($3,867.46).

Ontario Wind Engine & Pump Co: Covered strainer and fittings	111 00
Keith & Fitzsimons Co Bath 25.00. tank and fittings, 43.73	68 73
Purdy, Mansell & Co: Pipe, closets and castings	438 86
C. P. Godden: Iron pipe, castings, etc	130 95
Toronto Laundry Machy Co: Hangers, pulleys, etc	82 44
H Heather: Iron doors and galv iron work	126 15
Aikenhead Hardware: Filter, boiler, etc	75 55
R. McCausland: Leaded glass	14 00
Can General Electric Co: Electrical supplies, 443.15: lamps, 34.00	477 15
C. Rogers and Sons Co: Chapel fittings and supplies, 200.00: furniture, 139.75	339 75
Gutta Percha & Rubber Mfg Co: Hose, etc, 250.75: Sadler & Howarth: Belting, 161.49.	412 24
MacKenzie & Co: Frames, pictures, 138.60: J. B. Smith & Sons: Lumber, 629 92	768 52
Heintzman & Co: Organ, 130.00: piano, 250.00	380 00
H. Butwell: Brick, 42.50: J. Maloney & Co: Brick, cement, etc, 264.62	307 12
Brown Bros. Co: Trees, vines, etc	135 00

PUBLIC BUILDINGS.—*Continued.*

ASYLUM FOR INSANE, LONDON, ($24,672.82).

Infirmary :—
W. Stevely & Son. On account contract galvanized iron roofing, 1,375.00:
do angle beds, 30 24:
Schobacker & Co: Cont. verandah, dormers,etc, 815.00: window and door frames, 816.30:
G. H. Belton: Lumber, 2,379.18: D. Ferguson: Lumber, 828.95:
Alex. Johnston: Brick, 489.25: W. Heamen & Co: Cement, 14.00:
J. W. Cawrse: Lime, 27.60: Jas Reid & Co: Hardware, oil, etc, 204.74:
Hobbs Hardware Co: Glass, sash weights, cord, etc, 486 22:
Alex. Burnett & Sons: Chimney, coping, etc. 104 59: sills, etc, 28.75:
A. Irwin: On account contract plastering, 2,988.00:
J. Purdom: do fittings, doors, etc, 1,077.00:
Elliott Bros: do heating and plumbing, 4 950.00:
Electrical Construction Co: Contract wiring, etc, 1,295.00:
Hoskin & Malloch: Bolts and washers, 28.50:
W. J. Element: Sewer pipe, cement, etc, 274.88:
J. H. McLaren: Clerk of works, 288 00: M. McBrearty: Travelling expenses, 8.20:
Jas. Patton: Services as Inspector, 9 00: do 7.70:
Pay lists Men employed, 2,863.56 ..... $21.389 66

Addition to Laundry :—
Kernahan & Ferguson: Lumber, 378.68: G. H. Belton: Lumber, 4.34:
Shobacker & Co: Window frames, 98.00: Alex. Burnett & Sons: Sills, 73.92:
E. Leonard & Sons: Iron work, etc, 70.98: Jas. Cowan & Co: Bolts, 38.04:
W. Stevely & Son: Slating and galvanized iron work, 415.00:
Cawrse & Skuse: Lime, 102 00: W. J. Element: Cement, 67 60:
Alex. Johnston: Brick, 527.90: Jas. Anderson: Gravel, 32.00:
Hobbs Hardware Co: Glass, 17.72: J. H. McLaren: Clerk of works, 78 00:
Pay lists: Men employed, 1,009.01 ..... 2,913 19

General Repairs :—
W. Stevely & Son Repairing roofs, 205.00: pipe, slate, etc, 93 27 ..... 298 27

Travelling Expenses: H. E. Moore, 6.75: F. R. Heakes, 18.65: A. M. Wickens, 24.15:
R. P. Fairbairn, 7.60: M. McBrearty, 7.25: M. J. Quinn, 7.30 ..... 71 70

Renewals, Furniture, Furnishings, Etc., ($3,743.89.)

Gardener's house, shed and fence:
Alex Johnston: Brick, 182.64: W. J. Element: Lime and cement, 36 00:
W. Heamen & Son: Lime and cement, 5.95: W. J. Craig: Lumber, 135.61:
G. H. Belton: Lumber, 328.90: Kernahan & Ferguson: Lumber, 75 80:
James Reid & Co: Hardware, etc, 5.95: Pay lists: Men employed, 189 52 ..... 960 37

Pond Water Supply :—Hobbs Hardware Co: Iron pipe, castings, etc 220 15

Carpenter's and Chief Attendant's House :—Alex Johnston: Brick 202 50

Main Building :—W. Stevely & Son: Metal ceilings, etc 181 15

Green House :—Hobbs Hardware Co: Glass, 27.37: glass cases, 144.00:
James Cowan & Co: Glass cases, 164.25 ..... 335 62

Superintendent's House :—
A. Screaton & Co: Carpets, oil cloth, etc, 510.53: J. Ferguson & Sons: Repairing furniture, etc, 116.85: T. L. Partridge: Radiators, 50 67:
McClary Mfg Co: Refrigerator, etc, 29.75: steam tanks, etc, 34.80:
C. P. Industries: Spring mattrasses, 101.40: J. H. Herrick: Oil filters and cans, 59.50:
E. H. Russell & Co: Marble slabs, 96.60: baths, urinals and basins, 549.00:
S. S. Glass: Lathe, 95.00: James Anderson: Gravel, 200.00 ..... 1,844 10

ASYLUM FOR INSANE, HAMILTON, ($3,728.99.)

Completion of Baths and Lavatories ;—
Geo. Stevenson: Pipe, valves, etc,657. 83: urinals, 559.14: plumbing, 822.50:
Middleton Marble Granite Co: Tiling, 259.72: grates, 20 00: cappings, etc, 398.88:
Henry Huber Co: Hand sprays, 7.81: Hamilton Bridge Co: Beams and plates, 55.00:
W. McCoy: Bolts, etc, 8.66: M. Brennen & Sons Co: Lumber, 46.95:
H. & J. Dow: Cement and plaster, 194.10: George Frid & Co: Brick, 32.00:
E. J. Guest: Lime, 11.52 ..... 3,074 11

Female basement:—M. Brennen & Sons Co: Lumber, 67.14: D. Aitchison: Lumber, 280.59. 347 73

General :—J. Wilson: Repg roofs, 22.90: Willis Taylor: Chimney tops and repairs, 33.00:
James Findlay: Metal ceilings, 128.00 ..... 183 90

J. F. Hanrahan: Travelling expenses *re* cold storage 20 50

M. J. Quinn: do plumbing 84 30

Travelling expenses :—F. R. Heakes, 3.30: R. P. Fairbairn, 5.50: B. O'Byrne, 4.20:
A. M. Wickens, 5.45 ..... 18 45

Renewals, Furniture, Furnishings, etc., ($515.70.)

D. Belleghem: Pool table, 100.00: Samuel May & Co: Billiard balls and cues, etc, 28.00.. 128 00
Stanley Piano Co: Piano, 300.00: Sundry newspapers, advtg *re* water supply, 87.70 ..... 387 70

PUBLIC BUILDINGS.—*Continued.*

ASYLUM FOR INSANE, KINGSTON, ($8,727.42.)

Boiler House :—
Selby & Youlden: On account contract for boilers, 1,946.00: Elliott Bros: Steam fitting, 816.50: castings, 1,105.18: brick, fire clay cement, etc, 181.87:
Pay lists :—Wages men employed, 609.33.. $4,658 88
Convalescents' Home: E. Wishart: Stone, 184.00: Pay list: Men employed, 338.00 .... 522 00
Nurses Home :—E. Wishart: Stone, 165.78: R. Smith Stone, 47.75:
Pay lists: Men employed, 2,319 06 2,532 59
W. J. Savage: Painting windows and screen Rockwood Hospital 300 00
Breck & Halliday: Installing weather proof line, power house to avenue gate 488 00
Travelling expenses: M. McBrearty, 152.25: F.R. Heakes, 30.80: R. P. Fairbairn, 15.60:
A. M. Wickens, 11.80: H. E. Moore, 15.50 225 95

Renewals, Furniture, Furnishings, etc., ($1,159.45.)

Ontario Paving Brick Co: Brick, 108.00: G. T. Ry. Co. Freight chgs on brick, 71.00.... 179 00
McKelvy & Birch: Cooking kettles, 214.50: lavatories, 40.50 255 00
Goldie & McCulloch Co: Safe, 200.75: K. and P. Ry. Co: Freight chgs on safe, 17.80... 218 55
Robertson Bros: Cutlery, 140 00: R. J. Reid. Furniture, 104.50 244 50
James Reid: Furniture, 126.50: T. F. Harrison Co: Furniture, 130.00 256 50
F. Partridge: Wire guards 5 90

ASYLUM FOR INSANE, BROCKVILLE, ($1,198.55.)

Bathing apparatus :—
W. P. Driscoll: Brick-laying and carpentering, 135.95: Brown & Semple: Fitting up apparatus, 361.86: Rathbun Co: Lumber, 17.47: McCann & McGrath: Lime, 3.50:
W. H. Wood: Brick, 4.80. J. Hudson: Sand, 11.50:
R. H. Smart: Cement, pipe and valves, 96.02: H. Huber Co: Hand spray handles, 2.16 633 26
J. F. Hanrahan: Services *re* cold storage, 10.00: trav expenses, 6.75 16 75
General repairs :—
R. H. Smart. Cement, etc, 99.47: Peter Dwyer: Repg walls, masonry, etc, 361.50:
Alvin Eligh: Sand, $4.00: Brown & Semple: Castings, 6.57:
J. F. McCaw..Lime, 7.15: M. J. Quinn: Trav expenses, 69.85 548 54

Renewals, Furniture, Furnishings, &c, ($3,448.72).

Furniture :—A. Comstock, 200.00: M. McFadden, 201.60: D. Belleghem, 200.00:
E. B. Clegg & Co, 220.45: Buchanan & Sheridan, 87.00. 909 05
C. P. Industries: Beds, blankets, etc 405 24
Peterboro Mattrass Co: Mattrasses and pillows 190 00
F. B. Steacy: Cutlery, 23.50: Gutta Percha Rubber Co: Hose, etc, 533.75 557 25
Chandler & Massey: Microscope 90 00
Morris, Stone & Wellington: Trees and vines 200 00
R. H. Smart: Engine lathe, 296.00 cement, etc, 253.20 549 20
J. Hudson: Sand, 63 90: H. Wonder, sand, 10 00 73 90
J. F. McCaw: Lime, 2 45: H. T. Murray Drain tile, 1.75 4 20
R. B. Easton: Castings, etc, 57.52: Rathbun Co: Lumber and shingles, 107 66 165 18
Jno. McGee: Mason work, 208.00: Peterboro Music Co: Sewing machine, 38.00 246 00
G. T. Railway Co: Charges, 43.90: C. P. Railway Co: Charges, 6.80 50 70
Cartage :—R. Hudson, 50 cts: W. J. Hall, 1.00: P. J. Venney, 3.00:
J. H Hall, 3.50 8 00

ASYLUM FOR INSANE, COBOURG, ($16,771.57.)

Elliott Bros: Contract plumbing, 2,003.67:
Gegenstrom's system of bathing (2 bathrooms) 260.00:
radiators, pipe, etc, heating basement, 251.83 2,515 50
F. Dolan: Balance contract plastering 425 40
E. A. Wallberg: Contract heating 1,969 88
Climo Bros: Contract metal ceilings, etc 529 10
Keith & Fitzsimons Co: Contract combination fixtures, 395.00: additional fittings, 66.50. 461 50
J. B. Smith & Sons: Dispensary case, 53.00: counters and cupboards, 98.00 151 00
Leitch & Turnbull Co: Elevator and dumb waiter 704 80
G. B. Meadows: Stair case enclosure, 11.25: wire guards, 490.64 501 89
R. C. Allen: Balance paving basement 148 98
C. Rogers & Sons Co: Clothes presses, drawers, shelving, etc 168 85
Gurney Scale Co: Wagon scale, etc, 245.00. N. F. Macnachton, flag, 8.50 253 50
Treasurer Town Cobourg: On account extra cost improved drainage 500 00
Chas. Patton: Fire extinguishers 180 00
Gutta Percha & Rubber Co: Fire hose, etc. 172 50
Henderson Bros: Lumber, sash, etc, 130.52: Geo. Thompson, lumber, cement, etc, 475.89: 606 41
Geo. Spence: Lumber, sash, etc, 229.82: Jno. Hayden, doors, bolts, paint, etc, 123.80: 353 62
Eureka Mineral Wool Co: Pipe covering, 219.33: Northey Co: Duplex pump, 200.00: 419 33
Morrison Brass Mfg. Co: Grease separator, 16.20: H. Hall: Brick, 4.90 21 10

PUBLIC BUILDINGS.—*Continued.*

ASYLUM FOR INSANE, COBOURG.—*Continued.*

Ontario Lime Association. Lime, 9.00: D Kewan: Sand, etc, 2.00	$ 11 00
J. D. McIntosh: Tallow, salt, etc, 2.77: S. Cann: Gravel, stone. etc, 6 70	9 47
Dominion Bridge Co: Beams, 104.90: W. L. Allen & Co: Glass, paints and oils, 200.60:	305 50
Castings:—W. R Whitelaw, 200 88: Aikenhead Hardware, 2 00: Keith & Fitzsimons Co. 10.75: Crossen Car Co, 2.23: Oke & Oke, 1.00: Jas. Robertson Co, 26.00: Cobourg Water Co, 2 55	245 41
G. N. W. Tel. Co: Telegrams, 25 cts. Bell Tel. Co: Messages, etc, 9.75	10 00
G. T. Railway Co: Charges. 72.22: Can. Express Co: Charges. 60 cts	72 82
Cartage:—J. McDonell, 6 00: J. R O'Neil, 5.25: J H. McLaren, 18 06	29 31
T. L. Hicks: Bell hanging, 55.75: J. H. McLaren: Services clerk of works, 207.00	262 75
Pay lists: Wages men employed	2,860 58
Cold storage:—J. F. Hanrahan: Services, 40 00: travelling expenses, 38.40: plans and royalty installing drier system, 50.00: laundry fittings, 77.47: Ottawa Stair Works: Installing cold storage, 515.00	720 87
Travelling expenses:—F. R. Heakes, 22.15: M. C. O'Donell, 18.55: J. F. Sullivan, 3.50: A. M. Wickens, 33 90: M. McBrearty, 61.30: J. H. McLaren, 21.10	160 50
Hon. Wm. Kerr: Site for Superintendent's residence	2,000 00

Renewals, Furniture, Furnishings, etc. ($2,240.22).

Furniture: E. B. Clegg & Co., 716.50: H. Tait, 117.10: W. McFadden, 63 00: D. Belleghem, 11.00 Valley City Seating Co., 180.00: C. Rogers & Sons Co, 54.25: Office Specialty Co.. 43.50	1,185 35
J. Kay Son & Co: Couch cover, etc., 9.50: McDonald & Willson: Refrigerator. 115.00	124 50
J. A. Warren: Piano, 325.00: power cupboard, 13.50	338 50
R. Hall & Son: Carpets, quilts, &c, 215.16: J. Hayden: Mouldings, tools, etc, 298.71	513 87
Canada Laundry Mach'y. Co: Alteration to drying system	78 00

ASYLUM FOR IDIOTS—ORILLIA ($125.55).

A. W. Wickens: Travelling expenses *re* lighting	125 55

Renewals, Furniture, Furnishings, etc. ($7,274.77).

McDonald & Willson: Contract, chandeliers and shades	665 00
Can. General Electric Co: Exch'ge on pump, 503.25: balce on pump'g. mach'y, '01, 200 00: fittings and supplies, 2,239.74	2,942 99
Douglas Bros: Galv. iron coping, etc, 267.81: Wages of slaters and metal workers, 706.00: transportation and board of men, 208 60	1,182 41
Richmond Conduit Co: Conduit pipe and fittings	98 13
Canada Wood Specialty Co: Electric casings	46 00
Wages, Electricians: J. M. Lever, 210.15: C. E. Sheppard, 213.75: J. Thompson, 319.92: A. J. Paquette, 46.65	790 47
Wages, Carpenters: A. Jamieson, 35.94: J. Saunders, 24.50	60 44
Wages, Masons, &c: A. Harvie, 40.60: R. Malcolm, 16.50: H. Turcotte, 15 00: T. Webb, 15.75	87 85
Wages, Painters: J. Simons, 138.00: W. H. Moore, 29.75	167 75
Plumbing supplies: Jas. Robertson Co., 118.43: Jas. Morrison Brass M'f'g. Co., 300.22	418 65
B. H. Montgomery: Pipe covering. 431.63: John Ross, hardware, 8 50	440 13
Macnab Bros: Hardware, cement, etc, 123.30: paints and oils, 70.72	194 02
J. Dunn: Lime, 8 00: C. P Industries: Beds, 29.25	37 25
H. Cook & Co. Wall paper, 9.00: C. E. Sheppard: Trav. expenses, 5.20	14 20
A. M. Wickens: Trav. expenses, 18.30: Collector of Customs: Duty charges, 15 60	33 90
G. T. Railway Co: Charges	95 58

CENTRAL PRISON, TORONTO. ($1,248.49).

Completion of baths:—	
Jas. Robertson Co: Tanks, castings, etc	469 43
American Abell Engine and Thresher Co: Heater	500 00
Dominion Radiator Co: 12 radiators	103 51
Gurney Foundry Co: Valve registers	28 55
Wheeler & Bain: Metallic ceiling	147 00

Renewals, Furniture, Furnishings, etc. ($7,127.90).

Polson Iron Works: Balance 2 Heine water tube boilers, 2,100.00: smoke flue, 165.00: valves, etc, 38.40	2,303 40
Jos. Hall: Slating and galv. iron work, new Chapel	521 00
Forbes Roofing Co: Slating roofs, 54.40: Buffalo Forge Co: Steam fan, 537.00	591 40
Turnbull & Russell Co: Elevator, 98.00: Dodge M'f'g. Co: Car pulleys, etc, 390.10	488 10
Northey Co: Hand pump, 325.00: guages, 69.60	394 60
Vokes Hardware Co: Pulleys, 1.85: Ham M'f'g. Co: Lubricator fillers, 42.00	43 85

PUBLIC BUILDINGS.—*Continued.*

CENTRAL PRISON, TORONTO.—*Continued.*

RENEWALS, FURNITURE, FURNISHINGS, ETC.—*Continued.*

Beardmore Belting Co: Belting, 81.81: Gutta Percha and Rubber M'f'g. Co: Hose, etc, 11.60	$ 93 41
H. B. Malcolm: Cess pools, 27.00: B. H. Montgomery: Asbestos and pipe covering, 172.23	199 23
C. E. Dailey: Binder twine nippers	370 00
Jas. Robertson Co: Iron pipe, valves, castings, etc	576 17
J. B. Smith & Sons: Lumber, etc, 1,343.18: Ontario Paving Brick Co: Brick, 9.50	1,352 68
J. Maloney & Co: Lime, cement, etc, 127.30: Graham Nail Works: Nails, 19 75	147 05
Rice, Lewis & Son: Chain 3 60: H. S. Howland Sons & Co: Roof felt, etc, 1.51	5 11
Bricklaying: Robt. Townley, 14.20: T. Weatherall, 13.50: Jno. Welch, 14 20	41 90

REFORMATORY FOR BOYS, PENETANGUISHENE. ($1,343 65).

Main Building :—	
Douglas Bros: Contract slating and galv. iron work, 1,049.00:	
do galv. iron work, lavatory, 265 80	1,314 80
Travelling expenses: B. O'Byrne, 17.15: H. E. Moore, 11.70	28 85

RENEWALS, FURNITURE, FURNISHINGS, ETC. ($2,407.95).

Gurney Foundry Co.: contract improvement in heating system	1,115 00
W. LeCamp: wire fencing, 354.78: E. Beausoliel cedar logs and posts, 378.75	733 53
C. Beck Mfg. Co.: lumber, etc., 272.63: Gutta Percha & Rubber Mfg. Co.: hose, etc., 141.25	413 88
J. Morrison Brass Mfg. Co.: sinks, marble slabs and basin	61 51
P. Payette & Co.: labor and material for chimney	69 03
Canada Portland Cement Co.: cement	7 50
Jas. Allen: blasting stone on farm	7 50

ANDREW MERCER REFORMATORY FOR FEMALES ($2,216.65).

Improvements in Plumbing, etc :—	
Angus Macpherson: plumbing and supplies	649 95
Pay lists: wages—plumbers, bricklayers and carpenters	237 75
J. Paterson & Co.: plumbing	69 00
Maguire Bros.: cement, sand and gravel	30 50
Jas. Robertson Co: baths and castings	230 33
Treas. City of Toronto: balance re construction King St. sewer	999 12

RENEWALS, FURNITURE, FURNISHINGS, ETC ($7,481.30).

Alterations to Chapel, etc. :—	
J. B. Smith & Sons: lumber, etc., 1,249.77: C. V. Routley & Co.: wall paper, 4.19:	
R. H. Lear & Co.: combination brackets, 74.25: Metallic Roofing Co.: material, 539.86:	
Jas. Muldoon: lime and hair, 8.50: W. J. Adare sand, 5.25:	
Stewart & Wood: paints and oils, 80.94: J. W. Allan: glass, paints and oils, 120 55:	
Cobban Mfg. Co: glass, 22.53: Jas. Robertson Co.: castings, 835.13:	
Dominion Bridge Co: girder, etc., 42.25: John Duncan: gas regulators, 53.60:	
Dominion Radiator Co.: radiators, castings, etc, 267.12:	
Stevens & Chubb: placing girder, etc, 28.00: J. Paterson & Co.: plumbing, 90 50:	
Angus Macpherson plumbing, 210.03: M. Walsh: plastering, 23.30:	
T. Gander & Son: 85.00: F. Beal: graining, 32.00:	
Pay lists: wages, men employed, 2,041.15	5,813 92
Jno. Kay, Son & Co.: carpets, furniture, linoleum, etc.	433 46
J. Macdonald & Co.: carpets, etc., 205.66: R. Simpson Co.: linoleum, wall paper, etc., 73.15	278 81
Rice Lewis & Son: carpet, felt, etc., 16.88: C. P. Industries: beds and cupboards, 107.00	123 88
C. Rogers & Sons Co.: furniture, etc., 142.05: pulpit chairs and pedestal, 55.50	197 55
The Turnbull Russell Co.: dumb waiter, 30.00: J. B. Snider: desks, etc., 84.40	114 40
Elliott & Sons Co.: wall paper, etc..33.33: Lee-Collins Co.: frescoe stencil, 1.60	34 93
Steam Specialty Co.: reducing valves	109 00
Toronto Electric Light Co.: motor connections	20 00
Sanderson Pearcy & Co.: paints and oils	104 49
Hardware: Aikenhead Hardware, 45.29: D Johnston: 58.34	103 63
J. Muldoon: lime, cement, etc., 50.18: R. Whillans & Co.: gravel and sand, 6.40	56 58
H. Heather: repairing roofs, 68.85: A. Ross: plumbing, 21 80	90 65

INSTITUTION FOR THE BLIND, BRANTFORD ($1,600.32).

Waterous Engine Works: boiler, 616.15: new tubes, etc., 392.23: making connections, pipe, etc., 82.71: repairing engine, 60.00	1,151 09
Polson Iron Works: grates for boiler	64 00
Jas. Mitchell: masonry, etc., 185.64: brick, fire clay, etc., 60.46	246 10
Turnbull, Howard & Co.: repairing roof, 35.35: T. A. Cowan & Co: repg closets, 37.78	73 13
Schultz Bros. Co. iron ventilators	39 50
Travelling expenses: A. M. Wickens, 21.45: R. P. Fairbairn, 5.05	26 50

PUBLIC BUILDINGS.—*Continued.*

INSTITUTION FOR THE BLIND, BRANTFORD.—*Continued.*

RENEWALS, FURNITURE, FURNISHINGS, ETC, ($1,015.82).

Stanley Piano Co.: piano, 300.00:	Brantford Gas Co.: water heater, 26.00	$326 00
T. A. Cowan & Co.: range boiler, 39.00:	Closet and sink, 42.00	81 00
C. P. Industries: beds, etc, 87.35:	W. F. Babcock: mattrasses, 80.00	167 35
Schultz Bros. Co.: lumber and posts, 91.12:	laying floor, 131.35	222 47
R. C. Chave: contract painting wash room and laundry		30 00
W. Mitchell: cement floor, etc., 20.00:	C. Duncan: inlaid flooring, 169.00	189 00

INSTITUTION FOR THE DEAF AND DUMB, BELLEVILLE, ($575.75).

W. McGie: Steam coil, pipe, etc., heating		95 76
Thos. Hanley: Lumber, tile, cement, carpentering, plumbing, etc., re drains		188 28
R. Thompson: Tile, etc., 17.00:	plumbing, 16 00	33 00
W. Grover: Plumbing, 12.75:	Waterous Engine Co: Changing location of boilers, 139.20:	151 95
Jas. Robertson Co: Plumbing Supplies, 58.86:	M. McBrearty: Trav. expenses, 47.90	106 76

RENEWALS FURNITURE, FURNISHINGS, ETC. ($3,311.95).

Domestic Science :—		
Wm. McGie, refrigerator, cutlery, etc., 106.10:	W. W. Chown, sink, closet, etc., 144.19:	
Thompson & Co, furniture, 103.00:	Steinberger, Hendry Co., blackboard, 9.75:	
Furnishings: Ritchie & Co., 20.51:	Stroud Bros., 42.45:	
Thos. Hanley, fitting up room, 248.00:	Can. Express Co., charges, 2.25:	
Collector of Customs, duty charges, 4.50:	G. T. Railway Co., charges .94:	
W. H. Badgley, cartage, .50		682 19
Gutta Percha and Rubber Mfg. Co: Hose and fittings		370 31
Thos. Hanley: Granolithic walks		215 75
Elliott & Sons Co: Lumber, etc., 81.00:	A. N. Pringle: Lumber, 56.44	137 44
W. W. Chown & Co: Radiator, pipe, valves, etc., 164 82:	Scarfe & Co: Varnish, 60.00	224 82
J. W. Walker: Tools, 83.75: paints and oils, 407.55		491 30
R. Templeton & Co: paints and oils, 35.85:	Pratt Institute: Sett of bottles, 15.00	50 85
Luxfer Prism Co: Panels, prisms, etc, 130.00:	Trenton Elec. Co: Fixtures, 24.16:	154 16
J. G. Frost: Furniture		242 32
M. Moon: Painting Superintendent's house, 35.00:	Bursar's house, 34.00:	
General, 232.00		301 00
Geo. Weymark: Wages of painters		353 22
M. O'Donoghue: do carpenter		82 00
Dom. Express Co: Charges .90:	Can. Express Co: Charges: 1.30	2 20
G. T. Railway Co: Charges		4 39

AGRICULTURAL COLLEGE AND FARM, GUELPH ($35 804.16).

New Building :—		
J. Kennedy, tile, 21.00:	J. Monkhouse, sand, 1.80:	
Castings: A. Robertson & Son, 11.70:	J. M. Bond & Co., 70.95: G. B. Morris, 67 92:	
J. Morrison, Brass Mfg Co., 159.65:	H. Occomore, 58.35:	
Window shades, T. C. Watkins, 57.30:	G. B. Ryan & Co., 11.90:	
Furniture :—Office Specialty Co., 57.00:	Can. Furniture Mfg. Co., 36.90:	
Globe Furniture Co., 278.30:	Can. Office and School Furniture Co., 64.90:	
J. Davidson, 138.15: Ainsworth & Menzies, 20.00:	North Amer Bent Chair Co., 159.16:	
Furnishings :—D. E. Macdonald & Bro., 12.67:	G. D. Pringle, 10.75: T. J. Day, 9.33:	
Guelph Axle Mfg Co., use of forge, 1.50:	A. Green, assisting engineer, 27 00:	
Pay lists, wages men employed, 323.76:	G. T. Railway Co., charges, 2.56:	
C. P. Railway Co., charges, 6.94		1,609 49
Physical and Biological Laboratories :—		
Mahoney Bros., pipe, etc, 228.03:	Rogers Electric Co., electrical fixtures, 385.20:	
Thos. Irving, contract construction, 8,720.00	extras, 375.47:	
J. Kennedy, cement, pipe, etc., 263.35:	Keith & Fitzsimons, cont wiring, 2,373 00:	
Purdy Mansell & Co., cont heating, 1,764.00:	contract plumbing, 1,148.00:	
P. Martin, plastering, etc., 53.00:	J. H. McLaren, clerk of works, 99.00:	
Pay lists, men employed, 114.82:	W. Lochhead, trav. expenses to U. S., 92.70:	
B. O'Byrne, allowance for board, 184.26		15,800 83
New Electrical Building :—		
City of Guelph, repairs to water service, 4 05:		
Guelph Light & Power Co., electric light plant, supplies, 139.99:		
Can. General Electric Co., installation of plant, 2,172.00:		
Eureka Mineral Wool Co., packing, etc., 30.85:		
Lumber. R. Stewart, 145.25:	H. A. Clemens & Co., 34.44:	
G. R. Bruce, carpentering and materials, 156.79:		
J. D. Paterson, sand, 6.25:	J. Kennedy, lime, concreting, etc., 215.32:	
Smith & Callfas, brick, 55.21:	G. T. Railway Co., charges, 27.18:	
Guelph Cartage Co., cartage, 1.25:	Pay lists, men employed, 254.83	3,243 41

PUBLIC BUILDINGS.—*Continued.*

AGRICULTURAL COLLEGE AND FARM, GUELPH.—*Continued.*

Apparatus for Laboratories :—Eimer & Amend, 410.64 : Chandler & Massey Co., 280 79 :
Mineral Wool Co.. 102.03 : R. W. Phillips, 5.46 : E. Leitz, 467.07 :
Cambridge Bot. Supply Co., 40.50 : Fred Carl, 43.00 : M. Schaerer, 8.04 :
Waters Bros., 22.50 . Gowdy Mfg Co., 5.85 · Talbot & Eamer, 54.02 :
Map and School Supply Co., 69.29 ..... $1,509 19

New Poultry House :—
J. J. Mahoney, plastering, 93.00 : Thos. Foster, bricklaying, 1.33 .
T. A. Cornie, painting and glazing, 42.60: R. W. Phillips, plumbing and supplies, 57.25:
Castings, Jas. Robertson Co., 106 35: J. M. Bond & Co., 77.60: G. B. Morris, 150 39 :
Waters Bros., 1.35:
M. F. Cray, wood, 9.50 : A. Rumford, galv. iron work, 15.99 :
Carpentering :—F. McNaughton, 8.91: J. Crawford, 8.91: M. O'Donell, 70.50:
A. A. Dysart, 6.48:
H. A. Clemens & Co: Lumber and doors, 52.42: R. Stewart· Lumber, 42.19:
Furniture: J. Davidson, 22.25: J. M. Struthers, 2.67:
J. Howitt: Sand, 3.45: cartage, 5.75:
G. B. Ryan & Co: Carpet, 25.67: G. T. Ry. Co: Chgs. .61:
Pay lists: Men employed, 29 00: M. Keough: Scrubbing, 2.00 ..... 836 17

Coal shed :—
Hardware: G. B. Morris, 35.05: J. M. Bond & Co, 4.50:
J. J. Gartshore: Steel rails, 486 39: Guelph Rag & Metal Co: Iron beams, 5. 60:
Crowe Iron Works: Iron columns, 366.34: J. Kennedy: Rubble, lime, etc, 168.60:
Lumber: R. Stewart, 41.30: H. A. Clemens & Co, 16.44:
Cement: J. M. Bond & Co: 132.23: G. B. Morris, 169,47:
Milton Pressed Brick Co: Brick 39.00: Sand: J. Howitt, 4.00: J. Monkhouse, 11.00:
G. T. Railway Co: Charges, 9.15: C. P. Railway Co: Charges, 9 00:
Pay lists: Men, employed, 1,006.25 ..... 2,504 32

Boiler House :—
Christie, Henderson & Co: Lime, 23.94: W. Sunley: Galv. iron work, 124.15·
F. Schafer: Brick, 56.00: H. A. Clemens & Co: Sash, etc, 1.70·
G. B. Morris: Hardware, etc, 5.22: Mineral Wool Co: Wool, 8 90:
G. T. Railway Co: Charges, 8.00: Pay lists. Men, employed, 72.15. ..... 300 06

General :—
Mahoney Bros: Plastering, etc, 25.72: Mineral Wool Co. Wool, 10.82:
A. J. Brown: Contract Live Stock Pavilion, 2,475.00:
Guthrie & Guthrie: Legal services *re* purchase of site, 83.41·
W. T. Whittaker: Purchase of site—Macdonald Building, 6,500.00:
Mrs. A. Hoodless: Travelling expenses *re* plans, do 51.20·
G. M. Miller· Services as Architect *re* plans, do 150.00:
F. R. Heakes & Jas Mills Trav. expenses *re* plans, do 427.93:
Trav. expenses: H. E. Moore, 22.30: F. R. Heakes, 14.70: A. M. Wickens, 109.60:
B. O'Byrne, 42 49· M. McBrearty, 12.40· J. H. McLaren, 10.70:
M. J. Quinn, 27.15: R. P. Fairbairn, 11.06: E. C. Thomas, 26.21. 10,000 69

NORMAL AND MODEL SCHOOLS, OTTAWA ($2,637.57).

Butterworth & Co: Pipe, valves, etc. 813.27: steam fitting, 681.85..... 1,495 12
Powers & Co: Grate, bars, etc, 141.10: Wages of men, 227.50. ..... 368 60
Hugh Gillmor: Putting up iron girder 24 00
R. Lester: Contract *re* building chimney 589 00
Harris, Campbell & Bryden Furniture Co: Oak chairs 32 40
M. McBrearty: Travelling expenses 128 45

NORMAL AND MODEL SCHOOLS, LONDON ($1,814.71)

Domestic Science room, completing attic :—
J. Purdom: Fitting up and equipping room, 409 27: extra table, etc, 84.30. ..... 493 57
T. Partridge: Plumbing, etc, 341.59: Rogers Electric Co: Contract, wiring, etc, 187.50. 529 09
W. Stevely & Son: Range, and refrigerator..... 52 00
Geo. Spooner & Co: Burners, stands, etc..... 49 50
F C. Hunt: Contract, plumbing, lawn service..... 158 00
London Electric Co: Lamps and renewals, 30 50· J. Purdom: Bal. contract, attics, 380.00.. 410 50
Brown Bros Co: Trees 10 00
Travelling expenses: F. R. Heakes, 5 50 M. McBrearty, 10.95..... 16 45
Pay lists: Wages, men, employed..... 95 60

SCHOOL OF PRACTICAL SCIENCE, ($34,927.13).

New Buildings :—
John Aldridge: Balance contract excavating, 3,150.50: pipe, cement, etc, 10.23:
account contract mason and brickwork, 21,381.00..... 24,541 73
Aikenhead Hardware: Loan of boring drill 145 50
J. J. O'Connor: Clerk of works at 4.00 per day 352 00
L. McMullen: Services as Inspector at 3.50 per day 169 75

PUBLIC BUILDINGS.—*Continued.*

SCHOOL OF PRACTICAL SCIENCE.—*Continued.*

H. S. Mara: Valuation fee of site	$ 50 00
Pay lists: Wages men employed	503 80
Sundry Newspapers: Advertising for tenders	820 12
F. R. Heakes & J. Galbraith: Travelling expenses re plans	153 60
Apparatus, etc. for laboratories :—	
E. Dent & Co, 275.17: Can General Electric Co, 914.35: J. G. Biddle, 45.60: Crosby Steam Guage Co, 314.45: Weston Electrical Inst Co, 337.50: Builders' Iron Foundry, 30.60: C. E. Shedrick, 15.00: Jas. Robertson Co, 39.30: Eimer & Amend, 414.74: Locke Regulator Co, 65 00: Purdy, Mansell & Co, 47.29: H. F. Sharpe & Co, 568.85: Keith & Fitzsimons Co, 161.80: C. Desaga, 40.27: Wagner Electrical Mfg. Co, 159 17: Ferdinand Ernacke, 47 00: Map & School Supply Co, 76.77: R Muller-Uri, 180.05: C. Voight, 166.83: Brown & Sharp Mfg. Co, 427.50: Kenffel & Esser Co, 232.30: Crompton & Co, 77.72: R. Schofield, 40.25: Art Metropole, 85.00: Fletcher Mfg. Co, 38.00: Dom Bridge Co, 52.60: J. B. Smith & Sons, 51 00	4,904 11
Can. General Electrical Co: Motor, 502.50: Chas Rogers & Sons Co: Furniture, 131 80	634 30
Chas Rogers & Sons Co: Specimen cases for rock samples	348 00
Power Bros: Galv. iron work, 26.25: J. J. O'Hearn: Glass, glazing, varnishing, etc, 95.10	121 35
M. O'Connor: Varnishing and glazing, 68.77: Maguire Bros: Cement, sand, etc, 91.25	160 02
Castings :—Jas Robertson Co, 6.04: Canada Foundry Co, 36.58	42 62
J. B. Smith & Sons: Draughting tables, 787.90: lumber, etc, 540.39	1,328 29
Canada Office & School Furniture Co. Chairs	543 75
Robinson & Heath: Brokerage, express and freight charges	108 19

OSGOODE HALL, ($1,990.82).

J. B. Smith & Sons: Lumber, sash, etc	70 67
Chas Rogers & Sons Co: Alterations and additions to Judges' library	150 00
do Vault fittings for Surrogate Court	159 00
J. Aldridge: Balance contract addition to vaults	409 54
Jas. Robertson Co: Iron pipe, castings, etc	438 78
W. Maguire: Brick, lime, sand, etc, 71.38: Aikenhead Hardware: Hardware, 4.50	75 88
Toronto Auer Light Co: Lights, chain, etc	31 20
J. J. O'Hearn: Painting, staining, etc	115 40
W. Keand: Use of scaffolding	10 00
Pay lists: Wages men employed	30 35

NEW PARLIAMENT BUILDINGS, ($312 74).

J. & J. Taylor: Vault door and frames	70 00
Jas. Robertson Co: Castings, etc	142 94
Toronto Electric Light Co: Additional mains in basement	99 80

DISTRICT OF ALGOMA, ($3,393.38).

Court House, Sault Ste. Marie :—	
Treas. Town Sault St. Marie: Privilege of draining into town system, 100.00: W. F. Grant: Construction of sewer, 473.00: J. H. McKright: Legal services *re* sewer, 20.00: Kivas Tully, trav. expenses, 30.00: R. McCallum: Travelling expenses, 17.00	640 00
Lock-up Gore Bay :—	
N. R. Smith: Lumber, 20.29: Office Specialty Co: Document cases, 280.00. C. W. Mills: Painting, 84.40: Geo. Stram: Plastering, 155.50: R N. Thorburn Iron work, 26.88: Gurney Foundry Co: Castings, etc, 13.50: Chas. Rogers & Sons Co: Furniture, matting, etc, 147.51: Jas. Patton: Clerk of work at 3.00 per day, 168 00: trav. expenses, 40.30: Pay Lists: Men employed, 78.00	1,014 38
Lock-up, Blind River :—	
Eddy Bros Co: Lumber, 253.66: Aikenhead Hardware: Locks, 12.05: Bryan Mfg. Co: Cell doors, 40 50	306 21
Lock-up, Chapleau :—	
T. Lanargen: Stone, 80.40: teaming, etc, 1.50: F. Ryan: Teaming, 13.50: Wilson Bros: Windows, doors, etc, 109.50: P. McCoal: Lumber, stone, etc, 443.97: J. J. Adams: Lumber, carpentering, etc, 165.50: Langin & Jackman: Hardware, 13.74: J. Dexter: Painting, 35.00: C. P. Railway Co: Charges, 13.35: Pay lists: Men employed, 65.95. B. O'Byrne: Trav. expenses, 38.10: Allowance for board, 57.85	1,038 36
Lock-up, Wa-Wa :—	
Sims Lumber Co: Lumber, etc, 279.63: J. Waterworth: Brick, 9.80: F. S. Moore & Co: Lime, 7.70: T. McKessock: Windows, doors, etc, 70.00: Northern Hardware Co: Hardware, 23.26: T. S. Ryan: Iron work, 4.04	394 43

PUBLIC BUILDINGS.—*Concluded.* PUBLIC WORKS.

DISTRICT OF THUNDER BAY, ($30.00).

Lock-up, Port Arthur:—K. Tully, travelling expenses	$ 15 00
Lock-up, Fort William:— do do	15 00

DISTRICT OF MUSKOKA ($1,648.23).

Registry Office, Bracebridge:—	
Office Specialty Co.: Vault fittings, 1,465 00:	
J. Baker: Contract fence, 115.00: labor, 10.88: moving shed, 13.20:	
Jas. Whitten: Marble, slab, pipe, etc, 31 80: storm sash, 7.35:	
H. E. Moore: Trav. expenses	1,648 23

DISTRICT OF PARRY SOUND ($1,449.84).

Court House and Lock-up, Parry Sound:—	
Galna & White, lumber, 65.10: A. N. Finn: Pipe, etc., 62.90:	
Estate Wm. Beatty: Pipe, 29.15: E. Bregg: Masonwork, 4.62:	
H. W. Walton: Painting, 21.87: J. Quinn: Labor, 3.00:	
M. J. Quinn: Trav. expenses, 30.85	217 49
Lock-up, Byng Inlet:—	
Holland & Graves: Pipe, etc., 6.80: lumber, 467.09: wages, men employed, 232.50:	
White Bros.: Stoves, 24.00: C. P. Industries: Beds and blankets, 74 35:	
Aikenhead Hardware: Padlocks, 33.60: T. J. McGowan & Co.: Trough, pipe, etc., 14.56:	
A. Paterson: Painting and glazing, 16 43: J. R. Eaton: Door frames, sash, etc., 75.75:	
Northern Navigation Co.: Freight charges, 19.42:	
Jas. Patton: Clerk of works, 237.00: trav. expenses, 30.85	1,232 35

DISTRICT OF NIPISSING ($670.27).

Lock-up and Court House, Mattawa:—E. C. La Blanc: Porch door and frames	19 97
Court House, North Bay:—	
J. H. Marshall: Storm sash, doors, etc., 10 05: Chas. Rogers & Sons Co.: Chairs, 36.00:	
G. T. Railway Co.: Charges, 4.25	50 30
Lock-up, Warren: Treas. Municipality, construction	600 00

DISTRICT OF RAINY RIVER ($1,732.00).

Lock-up and Court Room, Rat Portage:—	
Scott & Hudson Building Co.: Desks, lockers, etc, 40.15: alter'ns to gaolers' house, 430.00:	
H. Ridout & Co.: Desks and cabinet, 58 90:	
H. A. Longley: Painting and paperhanging, 49.00:	
Travelling expenses: R. P. Fairbairn, 25.30 K. Tully, 7.00	610 35
Lock up, etc., Fort Francis:—C. P. Industries Beds, etc., 5.30:	
Travelling expenses: R. P. Fairbairn, 25.30: K. Tully, 6.50	37 10
Lock-up, etc, Mine Centre: K. Tully, trav. exp	6 50
Lock-up, etc., Emo:—Rothwell & Brown: Building foundation, 276.25:	
R. P. Fairbairn: Trav. expenses, 25.30	301 55
Lock-up, etc., Atikokan:—Rothwell & Brown: Building foundation, 192.95:	
MacKenzie & Mann: To purchase of lots, 100.00:	
Pay lists: Wages men employed, 458.25: R. P. Fairbairn: Trav. expenses, 25.30	776 50
Total Public Buildings	$ 198,276 59

PUBLIC WORKS.

MUSKOKA LAKE WORKS ($10,680.93).

Port Carling lock:—	
Timber, etc: I. McDermott, 4.00: C. H. Davidson, 35.94: W. H. Fairhall, 13.20:	
Rathbun Co. (contract) 2,080.86: T. Burgess (contract) 276.50: J. McCully, 8.00:	
Snider Lumber Co., 17.29: J. Carew, 6.12	2,441 91
Lumber, etc: Mrs. C. E. Wallis, 68.72: Rathbun Co., 176.92:	
J. B. Smith & Sons, 542.71: Isaac McDermott, 3.09: M. D. Wilson, 4.55	795 99
Grey & Bruce Cement Co: Cement, etc	481 75
M. Beatty & Sons: Spiral pipe, etc, and work of men	530 15
Hamilton Mfg Co: Rep'ng boiler and engine, 79.00: W. J. Insley, blksmth'ng, 38.50:	117 50

PUBLIC WORKS.—*Continued.*

MUSKOKA LAKE WORKS.—*Continued.*

H. W. Petrie: Drills, pipe, etc	$177 63
Iron, hardware, tools, etc: Maclennan & Co, 9.31: W. Hanna & Co, 89.28: Toronto Bolt and Forge Co, 206.28: G. W. Ecclestone, 14.68: Aikenhead Hardware, 59.86: Estate J. F. Young, 102.32: B. R. Mowry & Son, 14.35: E. B. Sutton, 1.00: Reid & Brown, 9.70	506 78
Dynamite: Johnson & Beveridge, 112.00: J. Whitten, 62.65	174 65
Supplies: F. D. Stubbs, 3.95: J. McCully, 8.94: W. Hanna & Co, 97.30	110 19
Gutta Percha and Rubber Mfg Co: Tubing, boots, etc	102 25
Noah L. Piper Railway Supply Co: Gelatine lighting	25 63
R. Latimer: Livery hire	2 00
Teaming: J. Meehan, 5.00: Jas. Stephens, 17.00: E. Watley, 8.94	30 94
Wood: C. H. Davidson, 50.13: Geo. Fox, 9.75 R. Bailey, 12.00	71 88
Board of men: J. Ruddy, 58.10: E. M. Davidson, 201.89: P. Grozelle, 4.40: J. Brooks, 75c: J. McCully, 43.00	308 14
Travelling expenses: P. Grozelle, 2.90: A. Mills, 14.30: W. O'Neill, 1.75: R. P. Fairbairn, 39.30: G. DeLury, 28.10: V. Robinson, 50c: W. J. Barnes, 2.90: A. Wells, 4.35	94 10
Travelling expenses and disbursements: Alex. Ross, 36.10: T. Walters, 35.45	71 55
Isaac McDermott: Freight charges and towing	35 00
Freight and express charges: G. T. Railway Co, 183.15: M. & G. B. Nav. Co, 77.29: Can. Express Co, 11.80	272 24
Pay lists: Wages men employed	3,832 25
G. N. W. Tel. Co: Telegrams, 11.28: Bell Tel. Co: Messages, 25c	11 53
Joseph River :—	
Light, Heat & Power Co: Hardware, tools, etc, 1.76: B. R. Mowry & Sons: Hardware, 14.00: Estate J. F. Young: Hardware, 12 26: J. G. Edwards: Fuse, 3.00: D. W. Ross & Co: Dynamite, etc, 109.00: J. McCully: Teaming, 2.00: J. C. Wallis: Towing, 16.00 M. & G. B. Navigation Co: Freight charges, 13.02: Pay lists: Wages men employed, 623.75: J. Chambers: Wood, 6.75. Travelling expenses and disbursements: A. Mills, 13.35: T. Walters, 3.75: Supplies. W. Hanna & Co, 81.57: Geo. Sutton, 46.32: C. Ames: Lumber and timber, 15.91: Supplies, 19.63: Teaming, 4.80	986 87
	11,180 93
Less refund Joseph River improvement	500 00
	10,680 93

MADAWASKA RIVER ($908.29.)

Hamilton Bridge Works Co: Contract bridge at Wingle, 735.00: Lumber, spikes and labor, 107.79	842 79
P. Burns: Stone filling, 5.00: J. Ryan, stone filling, 17.50	22 50
R. McCallum: Travelling expenses	43 00

PETEWAWA RIVER ($624.46).

Hamilton Bridge Works Co: Contract bridge	573 75
Pembroke Lumber Co: Timber, 24.06: R. McCallum: Travelling expenses, 26.65	50 71

STURGEON RIVER ($1,301.71).

M. Larocque: Filling stone in piers, 330.75: Geo. Gordon & Co: Timber, 29.15	359 90
Toronto Bolt & Forging Co: Bolts, rods, etc, 147.21: O. Aubin: Supplies, 1.30	148 51
Jas. Finney: Board of men, 37.67: Travelling expenses, 16.45	54 12
Teaming: M. Larocque, 9.00: S. Scharette, 1.50: J. Finney, 3.00: A. Larocque, 1.00: J. H. Jessup, 7.80	22 30
Pay lists: Wages men employed	716 88

MAGNETAWAN SWING BRIDGE ($5.58).

John Shea: Balance contract timber supplies, 1901	55 58
Less refund Jas. Finney for services, 1901	50 00
	5 58

MARY'S AND FAIRY LAKES ($5,976.16

Huntsville Bridge :—	
Hamilton Bridge Works Co: Contract bridge, 900.00: J. Whiteside: Timber, 45.15: E. W. Siler: Sand, 23.40: Hardware, bolts, etc: W. H. Mitchell, 41.66: White Bros., 4.78: Stone: S. W. McCargar, 5.75: F. Kent, 3.25: Cement: Owen Sound Cement Co, 27 52: Canada Cement Co, 49.00: T. E. Shay, sr: Teaming, 11.86: H. & L. of B. Nav. Co: Freight charges, 42.41: Use of scow, 167.25:	

PUBLIC WORKS.—*Continued.*

MARY'S AND FAIRY LAKES.—*Continued.*

Storage: C. Brown, 5.00: A. J. Reece, 5.00:
Blacksmithing: Paterson & Bray, 6.92: Jas. Wright, 6.65:
R. Francis: Rent of boiler, 15.00: R. P. Fairbairn: Travelling expenses, 35.29:
Pay lists: Wages men employed, 234.50 ..... $1,630 39

Muskoka River Bridge:—
Hamilton Bridge Works Co: Contract bridge, 4,003 78:
M. Brennen & Sons Co: Timber, etc, 28.06: Wright & Cribbs: Blacksmithing, 8.90:
H. W. Ross: Travelling expenses, 17.95: Huntsville *Forester*: Printing, 75c .....
Pay lists: Wages men employed, 286.33 ..... 4,345 77

BLACK RIVER WORKS ($1,000.00.)

Brown & Aylmer: Dredging, etc., 913.90: F. W. Deering: Services as Inspector, 66.50.. 980 40
R. McCallum: Travelling expenses..... 19 60

MATTAWA RIVER. ($500.00.)

Treasurer Town Mattawa: Renewal of bridge, Ottawa River 500 00

WABIS RIVER. ($1,340.51.)

Toronto Bolt and Forging Co: Bolts, truss rods, etc. 133 07
Taylor Bros: Iron, paint, etc. 16 93
G. DeLury: Services as overseer at 3.00 per day 108 00
Pay lists: Wages men employed, 139 93: J. Wilson: Cartage, 8.00..... 147 93
Board of men: W. J. Montgomery, 16.05: Mrs. Coulson, 18.30 ..... 34 35
J. McCracken, to pay: Postage, 23c: wages men Wabis Creek Bridge. 328.84:
overseer, 45½ days, 102.37: J. Wilson: Teaming, 8.00: Taylor Bros: Iron, etc., 71.07:
S. A. Hogg: Blacksmithing, 28.86: P. Kelly: Teaming, 25.00:
F. Lamarsh: Freight, 2.95: Lumsden Steamboat Co: Freight, 4.50:
C. P. Railway Co: Freight, 2.05: accountable, 326.36 ..... 900 23

MUSKOKA RIVER BRIDGE. ($2,000.00.)

Treas. Twp. Stephenson: Reconstruction bridge, Port Sydney 1,000 00
do Draper: do do South Falls 1,000 00

DES JOACHIMS RAPIDS BRIDGE. ($4,000.00.)

Minister of Finance, Ottawa: Grant for reconstruction of bridge 4,000 00

INDIAN POINT BRIDGE. ($2,596.61.)

Pay lists: Wages men employed, 119.00: R. S. Thorburn: Teaming, 2.00..... 121 00
E. L. Brazenor: Boat hire, 1 00: M. Buchanan: Blacksmithing, iron work, etc., 141.55. 142 55
W. Thorburn: Timber, etc., 676.44: J. P. Moran: Hire of pile driver, 376.00 ..... 1,052 44
Purvis Bros: Hire of tug, 120 00: Ganley Tug Line: Towing, 82.25..... 202 25
D. Bickell & Co Supplies, 84 84: W. H. Plummer & Co: Tools, 3.85..... 88 69
R. McCallum: Travelling expenses 17 00
J. F. Boyd, to pay: Wages of men, 419.15: telegrams, etc., 2.50:
36 days as superintendent, 252.00: J. P. Moran: Hire of pile driver, 200.00:
J. R. McGregor: Stationery, 45c: R. O. Small: Livery hire, 2.00:
Jos. Bailey: Teaming, 2.00: T. Harper: Supplies, 2.50:
R. H. Thorburn: Hardware, etc.. 16.07: A. McEachern: Teaming, 11.00:
J. W. Griffith: Blacksmithing, 16.67: M. McIntosh: Supplies, 12.83:
W. P. Johnston: Supplies, 3.75: E. L. Brazenor: Tools, 16.65:
W. Thorburn: Supplies, 14.06: M. Lehman: Supplies, 1.05 ..... 972 68

MISSISSAGUA RIVER PIERS. ($4,355.94.)

J. F. Boyd, to pay..Wages of men, 996.69: 9 days as inspector, 70.00 ..... 1,066 69
W. Edwards, to pay: Wages of men, 591 25: Moore & Brown: Cement, paint, etc., 1,070.60 1,661 85
Municipality of Town of Thessalon: Use of stone crusher..... 36 00
J. J. Harris: Plank, 52 46: Good Roads Machinery Co: Machinery, 30.00..... 82 46
Stewart & Donaldson: Teaming, 30.00: Bridge Bros: Tools and hardware, 67.31 ..... 97 31
H. W. Ross: Hire of screws, 15.00.. E. Lazotte: Blacksmithing, 17.40..... 32 40
Arnill Bros: Nails, rope, etc., 22 62: J. Warnock: Timber, lumber, etc., 79.10..... 101 72
H. Sargeant. Nails, tools, etc., 4.15: Brooks' Dray Line: Teaming, 1.00..... 5 15
Jas. Forrest: Pine plank, 1.25: C. P. Railway Co: Charges, 90.25 ..... 91 50
D. J. Sandie: Freight charges, 14.66: G. A. Boyd: Freight charges, 34.50 ..... 49 16
Dom. Express Co: Charges, 55c: Jas. I. Harris: Timber, 59.00 ..... 59 55
J. Forrest: Lumber, 80.10. E. Lazotte Hardware, 39.05 ..... 119 15
M. Anderson: Hardware, 7.60: pay lists: men employed, 801.80 ..... 809 40
R. McCallum: Travelling expenses 45 20
MacGregor & McIntyre: Steel beams and fittings 98 40

PUBLIC WORKS.—*Continued.*

DRAINAGE (63 Vic. Cap. 8.) ($5,297.00).

Treas. Twp. Cornwall: Grant to assist municipality, improvements				Beaver Creek dam	$ 750 00
do	Pelee Island:	do	do	drainage system	1,500 00
do	Tilbury East:	do	do	outlet drain	3,020 00
A. S. Code: Plan twp Bosanquet, *re* drain Nesbit					15 00
A. McDonell: Inspecting and reporting *re* drains, Tilbury					12 00

BASS LAKE DAM ($1,144.19).

Craig & Austin: Timber, etc, 34.60:	Gilmour & Co: Timber, 32.49		67 09
J. A. Lambert: Lumber, 92.37:	J. G. Edwards & Co: Tools, castings, etc, 87.26		179 63
J. McCrae: Tools and castings, 13.42:	A. McIntyre: Tools, 1.40		14 82
J. T. Robinson: Supplies, 129.95:	J. Lambert: Supplies, 17.71		147 66
T. Dillman: Board of men, 4.00:	Jno. Henderson: Livery hire, 2.00		6 00
E. B. Garlick: Livery hire, 2.00:	W. R. Givens: Teaming, 2.50		4 50
R. J. Mills: Teaming, 12 00	Pay lists: Wages of men, 680.41		692 41
Trav. expenses: J. Brooks, 17.03:	D. Campbell, 2.00:	T. Walters, 13.05	32 08

SQUAW RIVER DAM ($581.56).

W. C. Moore: Lumber, 43.29:	Maclennan & Co: Dynamite, tools, etc, 40.20		83 49
Board of men: Mrs. Ava. Quibell, 98.50:	A. G. Oliver, 5.50:	J. Kenney, 3.25	107 25
Teaming: E. B. Garlick, 20.00:	A. Quibell, 8.75:	W. R. Givens, 3.00: Alex. Oliver, 18.75:	
E. R. Edwards, 9.00			59 50
Trav. expenses and disbursements: W. O'Neill, 7.13:	T. Walters, 16.55		23 68
Pay lists: Wages men employed			307 64

RAINY RIVER DOCKS. ($2,450.00).

Rapid River Dock :—			
Pay lists: Wages men employed, 330.68:			
Geo. Sleeman: Hardware, timber, etc, 55.45:		Peter Radell: Blacksmithing, 9.20:	
Rat Portage Lumber Co: Plank, 237.06:	iron, rope, spikes, etc, 71.96		704 35
Rainy River Dock :—			
Pay lists: Wages men employed, 317.97:			
Geo. Sleeman: Timber, etc, 47.24:		P. Radell: Blacksmithing, 9.29:	
Rat Portage Lumber Co: Plank, 234.21:	iron, rope, spikes, etc, 62.91		671 62
Boucherville Dock :—			
Pay lists: Wages men employed, 293.37:			
E. J. Boucher: Old dock, 75.00:		Rat Portage Lumber Co: Plank, 105 06:	
Hardware, spikes, etc: Wells Hardware Co., 15.00:		A. E. Read, 6.00:	
J. W. Gordon & Co., 9.00			503 43
Barwick Dock :—			
Pay lists: Wages men employed, 285.87:			
Rat Portage Lumber Co: Plank, 187.00:		Geo. Cawston: Timber, 35.40:	
E. Tompkins: Hardware, tools, etc, 12.25:	Wells Hardware Co: Spikes and iron, 26.63:		
Thos. Weston: Hardware, 9.31:	board of men, 108.74		665 20
Big Forks Dock :—			
Pay lists: Wages men employed, 123.50:			
W. J. Holmes: Old dock, 75.00:		Can. Northern R'y: Charges, 35c:	
P. O'Connell: Work on dock, 9.00:		timber, 12.00:	
Board of men: P. Kerr, 51.97:		B. L. Philips, 2.00:	
R. J. Wilson: Timber, plank, etc., 107.61:	Wells Hardware Co: Spikes and iron, 30.25:		
E. Tompkins: Spikes, etc, 5.50:	Holmes Bros: Tools, spikes, etc, 10.18		
Emo Dock: P. F. Benniger: 7 days' work, 15.75:	iron, hardware, etc, 8.34		451 45
			2,996 05
Less amount of accounts unpaid			546 05
			$2,450 00

INDIAN RIVER ($110.26).

Pay lists: Wages men employed	95 01
R. McDonald: Fees and expenses *re* examination and report	15 25

LANDING DOCK—WABIGOON DISTRICT ($777.95).

Pay lists: Wages men employed, 294.75:	A. R. Maclennan: Plank, 115.03		409 78
A. H. Hunt: Iron, rope, etc, 43.15:	J. Smith: Hauling timber, etc, 28.00		71 15
J. Fraser: Spikes, 12.27:	J. McCrae: Board of men, 159.75		172 02
Wabigoon Steamboat Co: Fares of men and freight			125 00

PUBLIC WORKS.—*Continued.*

McKENZIE CREEK AND SNAKE RIVER ($341.00).

H. W. Selby: Services as engineer, 2.00: Hudson's Bay Co: Dynamite, 20.95	$22 95
Woodside Bros: Steel grapples, 12 25: J. Cavanagh: Use of launch, 40.00	52 25
Wabigoon and Manitou Steamboat Co: Use of tug and crew	80 00
T. J. Quinn: Teaming, 13.00: G. Sharp: Teaming. 2.50	15 50
J. McRae: Board of men, 14.30: Dom. Express Co: Charges, 1.45	15 75
Pay lists: Wages of men employed	154 55

STONEY CREEK BRIDGE ($831.68).

Lumber: W. J. Shea, 10.45: J. T. Harvie, 110.08: W. Sharpe Co, 33.80: Knight Bros, 104.06: A. Patterson, 10.00	268 39
Hilliar & Clark: Hardware, etc, 12.60: R. James: Teaming, 4.00	16 60
H. J. Smith: Blacksmithing, 1.10: A. A. Agar: Tools, etc, 1.90	3 00
A. Campbell: Hardware, 5.25: F. Brasher: Use of tent: 2.50	7 75
R. P. Fairbairn: Trav. expenses, 24.70: Pay lists: Wages men employed, 511.24	535 94

CASHMERE DAM (2 Edward VII, Cap. 20) ($1,000.00).

A. D. Everingham: Removal of dam in fishways	1,000 00

SURVEYS, INSPECTIONS, ETC. ($1,831.88.)

Minnetakie Lac Suel water route :— R. A. Hazelwood: Services 24 days, 360.00; travelling expenses, 81.90; disbursements, 3.60; Hudson's Bay Co: Supplies, etc, 40.13; hire of dog teams, 11 days, 44.00: J. Dixon: Cook at 2.00 per day, 22.00; J. Findlayson,: Wages at 1.25 per day, 13.75	565 38
Survey of flooded lands on Snake River :— J. H. Shaw: Services and plan, 345.00; travelling expenses, 22.50: Wages of assistants at 1.75 per day: Alex. Hamilton, 26.25; W. O'Neill, 16.25: J. S. McIntyre: Board of men, 2 25	412 25
Bridge at Rat Portage: T. R. Deacon, services and plan, 48.00: T. C. Blakely, 4½ days labor, 9 00; F. McKenzie, 4½ days labor, 9.00; A. T. Fife & Co: Castings, etc, 16.67: Scott & Hudson Bldg Co: Use of derrick, 5.80	88 47
Thomas Johnson: Law costs *re* lots Brunell	5 78
M. O'Brien: Services putting out fire Elliott Falls dam	10 00
McLaughlin & Johnston: Legal services, drowned lands Twp Fennell	12 00
J. F. Boyd: 3½ days with Engineer St. Joseph Island, 24.50 Iron bridge, 24.50	49 00
N. McDougall: To pay wages surveyor and axemen, surveying waterfront and inspecting Pigeon Lake Road	18 00
Travelling expenses: R. McCallum, 247.65; R. P. Fairbairn, 212.75; T. Burton, 32.00: T. Walters, 178.60	671 00

LOCKMASTERS, BRIDGETENDERS AND CARETAKERS SALARIES. ($5,020.00.)

Thos, Walters: Twelve months' salary as Superintendent			1,200 00
Wm. McIntosh: Services as Lockmaster,		Rosedale	240 00
Patrick Curtin	do	Lindsay	400 00
P. M. Shannon	do	Port Carling	225 00
E. Davidson	do	do	62 50
P. P. Young	do	Young's Point	400 00
W. Robinson	do	Huntsville	300 00
W Kennedy	do	Magnetawan	300 00
Thos. Burgess: Services as Caretaker		works, Bala	300 00
A. S. Smith	do	Dam, Port Sydney	100 00
Jacob Knoepfli	do	Ah Mic Lake Dam	160 00
D. Galloway	do	works Norland and Elliott Falls	60 00
J. Westlake	do	Mississiqua and Bottle Lake Dam	75 00
H. C. Austin	do	Dam, Kinmount	100 00
J. Chesney	do	Dam, Scott's Mills	50 00
J. Bayne	do	Deer Lake Dam	360 00
W. H. Hall	do	Eagle and Deer Lake Dam	37 50
Alex Quarrie	do	Keewatin Dam	300 00
Enoch Cox: Services as Bridgetender,		Port Sandfield	100 00
Thos Wetherup	do	Lindsay	200 00
Colin Campbell	do	Indian Point Swing Bridge	50 00

PUBLIC WORKS.—*Concluded.*

MAINTENANCE LOCKS, DAMS, ETC. ($9,934.23.)

Timber, etc.:—
George Gordon & Co., 13.21: T. Stinson & Son, 216.23.. J. Westlake, 21.36:
D. Sinclair, 50c.: A. T. Fife & Co., 5.70: J. Welch, 12.90: J. Carew, 118.67:
D. Dunford, 4 60: R. McCormack, 9.70: D. C. Leckie, 14.89· John Crain, 9.00:
H. McIlmoyle, 2.50: Kennedy & Davis Milling Co, 33.99: Mickle, Dyment & Co,7.17 $470 42

Lumber etc.:—
E. Young, 41.75: W. L. Shields, 162.80: S. H. Jacobs, 13.96: S. B. Triche, 28.03:
D. Gordon & Co, 3.66 : Rathbun Co, 1,090.19 : W. H. Fairhall, 213.60:
P. P. Young, 2.50· W. McMillan, 75c.: J. J. Hunter, 64.95: G. W. Stevens, 14.00:
P. Nichols, 15.60 ..... 1,651 79

Kennedy & Davis Milling Co: Wood, 5.25 : lumber, 65.09..... 70 34

Hardware, tools, castings, etc.:—
W. Kirk, 1.45· Boxall & Matthie, 60c.: McLennan & Co, 88.86: A. Cullon, 1.95:
Toronto Bolt & Forging Co, 124.86· W. H. Casement, 56.70: J. Welsh. 3.85:
R. Heard, 20 93: P. Hamilton Co, 12.17: Kingston Hardware Co, 6.84:
J. R. Booth. 12 85: Wright & Cribbs, 2.75: S. Burgess, 4 00: G. Gervas, 2.69:
R. Lillie, 51.97: Michaud & Levesque, 2.41· B. R. Mowry & Sons, 19.55:
Est. of J. F. Young, 57.81: G. H. McGee, 18.25: J. G. Edwards & Co, 12 69:
D. J. Hartle, 1.72: J. E. Farrelly, 5.35. B. Mickle & Co, 1.48: Reid & Brown, 10.20:
J. Rhodes, 1.35: D. McFadden, 85c: Poulson & West, 2.00· W. E. James, 40.30:
E. Touos, 7.95: Hamilton Bridge Works Co, 10.88: J. C. Penser, 1.63:
S. B. Black, 10c . 586 99

J. McCrae: Bridge wheel, bolts, etc 58 37

Provisions and supplies :—
T. Brady, 1 00: W. Leitch, 7.57: J. Brunell, 5.00: Young & Soward, 41.27:
W. L. Robson, 24.82: O. Aubin, 1 65· P. Grozelle, 2.20: Middleton Bros, 5.20:
W. Hall, 3.42: W. Hanna & Co, 110.55· Phœnix Drug Store, 2.50:
N. L. Piper Railway Supply Co, 11.10: Ontario Rubbr Co, 75c· P. Oulitte, 2.50:
J. Welch, 2 66: J. McCulley, 3.30: Geo. Sutton, 85.41: Hilliar & Clark, 41.45:
L. Downey, 77c: W. Giles, 13.51: G. Johnston, 70c S. E. Hancock, 1.50:
J. Burgess, 21.73: W. Welsh, 19.06: D. J. Hartle, 5.84: T. Godwin, 11.77:
McNight & Mickle, 85c 428 08

Sylvester Bros: Pumps, 7.00: T. Connor: Stone, 3.50..... 10 50

J. G. Edwards & Co: Tent, 30.00: Gillespie & Co: Rubber boots, 11.00..... 41 00

H. L. Bastien: Canoe, 10.50: J. Berry: Repairing diving boots, 1.00 ..... 11 50

J. A. Rogers: Hire of boat 5 00

Beard of men :—
T. Stinson & Son, 23.06: W. E. Brooks, 26.50: Geo. Wait, 30.20:
J. A. Lucas, 21.15. S. H. Jacobs, 6.60: E. Bush, 2.55·
Mrs, J. Deschamps, 2.00: A. Graham, 16.15: D. Bowen, 5.20: E. Cox, 13.52:
W. Dunford, 4.35: P. Barr, 13 80: S. Switzer, 8.70: F. Raby, 29.85:
Mrs. D. Johnston, 7.28: J. Busby, 6.65: F. Lettman, 1.50. J. Twomey, 15.00.... $234 06

Fares of men :—
S. H. Jacobs, 6.00: J. Pearson, 38.00 ..... 44 00

Towing, etc. :—
Thos. Robson, 29.50: G. F. March, 25.00: J. J. Hunter, 5.00· J. C. Wallis, 16 50.. 76 00

Teaming :—
J. H. Jessup, 7.05: Wilder & Co., 4.90: T. Stinson & Sons, 25.95: J. Westlake. 17.50:
E. Young, 18.25: A. Paull, 10.00: E. Stay, 3.00: F. C. Labeau, 35c:
E. R. Edwards, 18.50: J. Morin, 7.00: J. Meehan, 25c: D. Kernaghan, 5.00:
E. Cox, 3.00: J. Brooks, 50c: S. Switzer, 1.50: J. Kennedy, 5.50:
E. A. Stinson, 11.55 ..... 139 80

Livery hire :
A. J. Mills, 5.25: J. Cooper, 8 00: J. Paull, 3.50: R. J. Mills, 1.50:
J. Kennedy, 18.25: J. A. Lucas, 6.00: A. Stinson, 4.50: J. Jacks, 6.00:
A. Graham, 7.65..... 60 65

Freight charges :
H. Workman, 1.55: Muskoka & G.B. Nav. Co., 88.06: Trent Valley Nav. Co., 15c:
G. T. Railway Co., 4.57: C.P. Railway Co., 30.00: Wilder & Co., 6.55..... 130 88

Can. Express Co: Charges, 22.85: Bell Telephone Co: Messages, 5.55..... 28 40

G.N.W. Tel. Co: Telegrams, 9.82: C.P.R. Tel. Co: Telegrams, 80c 10 62

Travelling expenses and disbursements :—
W. O'Neill, 91.77: P. Grozelle, 10.10· J. Welch, 2.30: E. B. Garlick, 4.00:
J. Robson, 14.10: A. Mills, 4.90: T Walters, 89.13: Alex. Ross, 31.35:
C. Kennedy, 3.85..... 251 50

Travelling expenses :—
R. McCallum, 37.60: M. C. O'Donnell, 51.45: Jas. Finney, 88.12. J. Brooks, 28.50:
J. P. Edwards, 16.40: J. Pearson, 25.32: M. Mulcahy, 1.60: C. O'Leary, 1.60.... 250 59

W. M Kennedy: Postage, 34c: Sundry newspapers: Printing and stationery, 11.82..... 12 16

Sundry newspapers, 1.00: J. A. McCully. Acting Lockmaster Port Carling, 58.50..... 59 50

Pay lists: Wages of men employed 5,302 08

Total Public Works ..... $ 64,609 94

COLONIZATION ROADS. ($196,246.07).

Algoma Mills and Blind River Road.	Benj. Causley, services as overseer, 14 days at 2.25	$ 42 75	
do	Pay lists, wages of men employed	188 39	
do	B. Causley, plank and freight	57 01	
do	Sundry persons, shovels, spikes, postage, etc	11 85	
			$300 00
Ansonia Bridge	Jno. F. Boyd, balance, 1901		19 53
Atwood and Curran Road	J. A. Tierney, paymaster		
	Pay lists, wages of men employed	901 91	
do	Sundry persons, provisions, groceries, etc	332 21	
do	do do tools, etc	82 00	
			1,316 12
Armour and Strong boundary bridge	Wm. Fleming, services as overseer, 18 days, at 2.25	40 50	
do	Pay lists, wages of men employed	107 60	
do	Sundry persons, timber, iron, blacksmithing, postage, etc.	138 04	
			286 54
Armour 10 S. L. Rd.	Henry Varcoe, services as overseer, 29½ days at 2.25	66 37	
do	Pay lists, wages of men employed	327 49	
do	Sundry persons, tools, postage, etc	6 55	
			400 41
Apsdin and Muskoka Road	Wm. Clark, services as overseer, 23 days at 2.25	51 75	
do	Pay lists, wages of men employed	215 73	
do	Sundry persons, plank, tools, postage, etc	27 77	
			295 25
Addington Road (Lyndock)	P. Moriarty, services as overseer, 18 days at 2.25	40 50	
	Pay lists, wages of men employed	151 00	
do	P. Moriarty, tools and use of implements	13 10	
			204 60
Appleby Roads	A. Richer, services as overseer, 13 2-10th days at 2.25	29 92	
do	Pay lists, wages of men employed	200 20	
do	Sundry persons, scraper and tools	19 50	
do	J. Lamarch, services as overseer, 14½ days at 2.25	32 62	
do	Pay lists, wages of men employed	167 38	
			449 62
Anstruther Road	T. G. Eastland, services as overseer, 10 days at 2.50	25 00	
do	Pay lists, wages of men employed	178 75	
			203 75
Addington (Kaladar) Road	E. Mellon, services as overseer, 17¾ days at 2.25	39 93	
do	Pay lists, wages of men employed	173 57	
	Sundry persons, provisions, etc	36 50	
			250 00
Arden and Harlow Road	J. A. Newton, services as overseer, 20½ days at 2.25	46 12	
do	Pay lists, wages of men employed	252 65	
	J. A. Newton, cartage, etc	1 23	
			300 00
Alice Roads	A. McLeod, services as overseer, 20 days at 2.25	45 00	
do	Pay lists, wages of men employed	234 60	
do	Sundry persons, tools and material	20 10	
do	Jno. Stapleton, services as overseer, 7¾ days at 2.25	17 43	
do	Pay lists, wages of men employed	54 64	
do	Murray and Stapleton, tools, etc	7 93	
do Con. 6	Wm. Schultz, services as overseer, 8 days at 2.25	18 00	
do	Pay lists, wages of men employed	71 25	
do	Sundry persons, shovels, cedar, etc	13 80	
		482 15	
do	Less sale of tools	5 25	
			476 90
Balfour Road	O. Vaillancourt, services as overseer, 17 days at 2.25	38 25	
do	Pay lists, wages of men employed	181 87	
do	Sundry persons, plow, tools, dynamite, postage, etc	33 45	
			253 57
Barry Bay Road	M. Kennedy, services as overseer, 24 days at 2.25	54 00	
do	Pay lists, wages of men employed	222 75	
do	Sundry persons, cedar, tools, etc	23 79	
			300 54
Birch Lake and Webbwood Road	J. McLean, services as overseer, 13 days at 2.25	29 25	
	Pay lists, wages of men employed	300 00	
do	Sundry persons, right of way, tools, etc	18 75	
			348 00
Blind River and Iron Bridge	J. Allan, overseer, on account		300 00

COLONIZATION ROADS.—*Continued.*

Bruce Mines and Desert Lake Rd ..	A. McDonald, services as overseer 31½ days at 2.25	$ 70 87		
do	Pay lists, wages of men employed	426 20		
do	Sundry persons, tools etc.....	4 05		
				$501 12
Bridge repairs (Algoma).....	Neil McDougall, paymaster. Pay lists, wages of men employed.....	401 37		
do	Sundry persons, timber, nails, dynamite, axes, etc.....	255 53		
				656 90
Bruce Mines and Rydal Bank Road.	John Tees, services as overseer 23½ days at 2.25	52 87		
do	Pay lists, wages of men employed	276 25		
do	Sundry persons, plank, nails, blacksmithing, etc	70 88		
		400 00		
do	Less lumber account	1 14		
				398 86
Blind River Rd.....	J. McGaulay, services as overseer 22 days at 2.25.....	49 50		
do	Pay lists, wages of men employed.....	352 48		
do	Sundry persons, plow, tools and use of grading machine...	46 25		
				448 23
Burriss Road	J. A. Tierney, paymaster.			
do	Pay lists, wages of men employed			200 00
Beaver Lake Bridge.	John Murphy, services as overseer 24 days at 2.25.....	54 00		
do	Pay lists, wages of men employed	193 18		
do	Sundry persons, timber and material	161 01		
				408 19
Bethune Road	John Murphy, services as overseer 19 days at 2.25.....	42 75		
do	Pay lists, wages of men employed.....	249 41		
do	Sundry persons, axes, drills, etc	8 95		
				301 11
Bethune 6 Con. Rd.	John Rattenbury, services as overseer 21½ days at 2.25....	48 37		
do	Pay lists, wages of men employed.....	240 15		
do	Sundry persons, shovels, blacksmithing, etc	13 85		
				302 37
Baysville and Huntsville Road.....	Andrew Hood, services as overseer 12 days at 2.25	29 02		
do	Pay lists, wages of men employed	161 38		
do	Sundry persons, plank, shovels, etc.....	17 29		
		207 69		
do	Less sale of tools	6 05		
				201 64
Brunel Road	E. Brown, services as overseer 29 days at 2.25.....	65 25		
do	Pay lists, wages of men employed.....	321 90		
do	Sundry persons, timber, dynamite, postage, etc	12 87		
				400 02
Baxter Roads	A. Larmond, services as overseer 21 days at 2.25	47 25		
do	do do 20 days at 1.25.....	25 00		
do	Pay lists, wages of men employed.....	149 75		
do	Postage.....	51		
do	Sundry persons, lumber, nails, shovels, etc	57 49		
				280 00
Buck and Round Lake Rd	Henry Boxall, services as overseer 22½ days at 2.25.....	50 62		
do	Pay lists, wages of men employed.....	242 87		
do	Postage	25		
do	Sundry persons, shovels, etc	10 45		
		304 19		
do	Less sale of tools	2 03		
				302 16
Baysville Bridge....	B. Wickett, services as overseer, 5 days at 3.00	15 00		
do	Sundry persons, iron, timber, blacksmithing, etc	82 38		
				97 38
Berkindale and Fox Pt. Rd	W. G. Burk, services as overseer 16 days at 2.25.....	36 00		
do	Pay lists, wages of men employed	151 87		
do	Sundry persons, tools, dynamite, etc	12 93		
		200 80		
do	Less sale of tools	2 50		
				198 30
Bridge repairs (Matchedash)	John Doyle, services as overseer 17 days at 2.25	38 25		
do	Pay lists, wages of men employed	57 28		
do	J. Doyle, lumber	177 57		
do	Sundry persons, spikes and scantling	5 85		
				278 95

COLONIZATION ROADS.—*Continued.*

Bancroft Road	D. H. Kelly, balance 1901		$23 95
Bonfield Road	J. Hurtubise do		17 99
Burnt River Bridge.	J. Retter, do		11 05
Black Bridge.....	P. Leeder, do		9 50
Banbury and Ax Lake Road	J. Daly, do		20 04
Blezard Road.....	O. Frappier, do		10 00
Bass Lake and Gully Line	M. Mansfield, services as overseer, 10 days at 2.25.....	$ 22 50	
	Pay lists, wages of men employed.....	307 50	
			330 00
Black Line and Cavendish Road .	M. Mansfield, services as overseer, 12 days at 2.25.....	27 00	
	Pay lists, wages of men employed.....	388 75	
			415 75
Brennans Creek B'dge	J. Coghlan, services as overseer, 10 days 1 hr, at 2.25	22 75	
do	Pay lists, wages of men employed.	56 50	
do	J. Coghlan, cedar timber	15 00	
do	do board of men.....	10 11	
			104 36
Bear Creek Bridge..	J. Costonguay, services as overseer, 7 days at 2.25.....	15 75	
do	Pay lists, wages of men employed.....	63 74	
do	A. Hamilton, axes and postage.....	3 46	
			82 95
Bromley 4 and 5 Con. Road	J. E. Dooner, services, as overseer, 16½ days at 2.25	39 37	
	Pay lists, wages of men employed	250 77	
do	Sundry persons, cedars and bolts	12 99	
		303 13	
do	Less amount of account unpaid	3 13	
			300 00
Bromley 5 line Road	Peter Sammon, services as overseer, 17 days at 2.25	38 25	
do	Pay lists, wages of men employed.....	179 00	
do	Sundry persons, shovels, etc.....	10 00	
		227 25	
do	Less sale of tools.....	2 50	
			224 75
Barry Road.....	C. B. St. George, services as overseer, 38 days at 1.50....	57 00	
do	Pay lists, wages of men employed.....	139 25	
do	Sundry persons, hire of tools	3 75	
		200 00	
do	Less amount of account unpaid.....	10 00	
			190 00
Barrie Bridge.....	M. Davy, services as overseer, 7 days at 2.25.....	15 75	
do	Pay lists, wages of men employed.....	27 00	
do	Sundry persons, cedars and blacksmithing.....	7 25	
			50 00
Bonfield, 2 Con. Rd.	J. Boissenault, services as overseer, 15 days at 2.25..	33 75	
do	Pay lists, wages of men employed....	165 61	
do	Cahill Bros, axes, postage, etc.....	9 00	
		208 36	
do	Less amount of account unpaid	18 36	
			190 00
Bonfield, 13 Con. Rd	C. Rancourt, services as overseer, 30 days at 2.25.....	67 50	
do	Pay lists, wages of men employed...	420 35	
do	Sundry persons, tools, and blacksmithing.....	12 15	
			500 00
Bonfield and Nosbonsing Rd...	J. Guilmet, services as overseer, 20 days at 2.25.....	45 00	
	Pay lists, wages of men employed.....	215 52	
do	Sundry persons, timber, postage, etc.....	39 98	
do	A. Rochefort, services as overseer, 14 days at 2.25.....	31 50	
do	Pay lists, wages of men employed.....	163 98	
do	G. Morrison, axes, postage, etc.....	4 52	
			500 50
Brudenell and Hagarty Road ...	J. Call, services as overseer, 20 days at 2.25.....	45 00	
	Pay lists, wages of men employed	205 00	
do	Dunnegan Bros, shovels, etc.....	8 75	
			258 75
Burleigh Anstruther and Chandos Rd..	T. G. Eastland, services as overseer, 25 days at 2.50	62 50	
	Pay lists, wages of men employed.....	465 98	
			528 48
Blezard Road.	O. Frappier, services as overseer, 15 days at 2.25..	33 75	
do	Pay lists, wages of men employed.....	175 38	
			209 13

COLONIZATION ROADS.—*Continued.*

Black Creek Rd.....	H. Kutchke, services as overseer, 20 days at 2.25.....	$ 45 00		
do	Pay lists, wages of men employed.....	226 50		
do	Sundry persons, plow, shovels and blacksmithing..	39 70		
				$311 20
Brudenell and	P. O'Connor, services as overseer, 18 days at 2.25	40 50		
Killaloe Road.....	Pay lists, wages of men employed	215 25		
do	Sundry persons, shovels and use of scraper.....	9 75		
				265 50
Brazeau Road	B. Brazeau, services as overseer, 14½ days at 2.25.....	33 10		
do	Pay lists, wages of men employed.....	167 90		
				201 00
Buckhorn Road.....	C. Coben, services as overseer, 5 days at 2.50.....	12 50		
do	Pay lists, wages of men employed	249 00		
do	R. Shaw, services as overseer, 8 days, at 2.50	20 00		
do	Postage	20		
do	Pay lists, wages of men employed.....	194 81		
				476 51
Burnt River Bridge.	F. Train, services as overseer, 30 days at 3.00	90 00		
do	Pay lists, wages of men employed	104 75		
do	Craig & Austen, timber	192 55		
do	Sundry persons, cedar, nails, blacksmithing, etc	77 74		
				465 04
Bedford Stn. Road..	Jno. E. Watson, services as overseer, 17 days at 2.25	38 25		
do	Pay lists, wages of men employed	212 75		
do	Sundry persons, shovels, etc	15 30		
				266 30
Brougham 16 Con.	J. Dies, services as overseer, 2 days at 2.00	4 00		
Road.	Pay lists, wages of men employed	54 00		
do	J. Dies, cedar	17 00		
				75 00
Buckhorn Lakeshore	A. E. Kennedy, services as overseer, 11 days at 2.25	24 75		
Road.	Pay lists, wages of men employed	231 25		
do	Sundry persons, cedar and tools	13 70		
		269 70		
do	Less municipal grant.....	150 00		
				119 70
Bells Rapids Rd....	M. Shallow, services as overseer, 17 days at 2.25	38 25		
do	Pay lists, wages of men employed	193 00		
do	Sundry persons, plow and shovels	20 90		
				252 15
Battersea and	G. McFarlane, services as overseer, 4 days at 2.25..... .	9 00		
Kingston Road.	Pay lists, wages of men employed	91 50		
				100 50
Brougham 5 side	M. Maloney, services as overseer, 14 days at 2.25	31 50		
line Road.	Pay lists, wages of men employed	189 00		
				220 50
Bonheur & Sturgeon	Neil McDougall, paymaster			
Lake Mining Rd.	Pay lists, wages of men employed	48 00		
do	A. Guerrard, meals and board	20 11		
do	C. P. R., fares and freight	8 85		
				76 96
Carlow & Raglan...	J. Beaudry, balance, 1901			27 00
Calvin Tp. Road ...	A. Adams, do			20 73
Cartier Road	V. W. Johnson, do			10 88
Carpenter & Dobie..	J. A. Tierney, do			55 97
Crozier, Devlin and Lash	J. A. Tierney, do			21 19
Crozier & Roddick..	J. A. Tierney, do			34 87
Crow Lake Road ..	Jno. Knapp, do			49 39
Cawley Road.....	J. Cawley, do 1895.....			20 06
Conmee Tp. Road ..	Neil McDougall, paymaster			
do	Pay lists, wages of men employed	529 99		
do	Sundry persons, provisions and supplies.....	169 45		
do	do timber, axes and freight	16 59		
				716 03
Crozier and Fort	J. A. Tierney, paymaster			
Frances Road.	C. W. Hughes, services as overseer, 42 days at 2.50	105 00		
do	Pay lists, wages of men employed	1,023 66		
do	Sundry persons, provisions and supplies	337 48		
do	do tools, etc	61 10		
do	do crossway timber.....	532 50		
				2,059 74

COLONIZATION ROADS.—*Continued.*

Crozier & Lash Rd..	J. A. Tierney, paymaster			
do	Pay lists, wages of men employed		$603 29	
do	Sundry persons, crossway timber		195 00	
do	do	hay and oats	70 75	
do	do	groceries, provisions and board of men	195 91	
			1,064 95	
do	Less amount of account unpaid		84 95	
				$980 00
Crozier, Devlin and Lash Road.	J. A. Tierney, paymaster			
	Pay lists, wages of men employed		331 32	
do	Sundry persons, crossway timber		105 89	
do	do	provisions and board of men	85 53	
				522 74
Carpenter and Emo Road.	J. A. Tierney, paymaster			
	Pay lists, wages of men employed		406 05	
do	Sundry persons, crossway timber and tools		65 10	
do	do	provisions and groceries	128 86	
				600 01
Carpenter and Lash Road.	J. A. Tierney, paymaster			
	Pay lists, wages of men employed		744 72	
do	Sundry persons, tools and rent of house		18 40	
do	do	provisions and groceries	232 24	
				995 36
Carpenter and Dobie Road.	J. A. Tierney, paymaster			
	Pay lists, wages of men employed		610 66	
do	Sundry persons, crossway timber and tools		348 35	
do	do	provisions and groceries	196 62	
				1,155 63
Cockburn Is. Rd....	R. Menary, services as overseer, 24 days at 2.25		54 00	
do	Pay lists, wages of men employed		243 00	
				297 00
Carnarvon 12 Con. Road	D. Williamson, services as overseer, 22¼ days at 2.25		50 06	
do	Pay lists, wages of men employed		249 74	
do	Stationery and postage		20	
				300 00
Coffin, 4 and 5 Road	Wm. Alcock, services as overseer, 11½ days at 2.25		25 87	
do	Pay lists, wages of men employed		160 27	
do	Sundry persons, cedar and blacksmithing		13 91	
			200 05	
do	Less amount of account unpaid		10 05	
				190 00
Christie Bridge	Wm. Fleming, services as overseer, 15½ days at 2.25		34 87	
do	Pay lists, wages of men employed		148 87	
do	Sundry persons, tools, postage, etc		20 00	
				203 74
Chaffey Road	Wm. Eagle, services as overseer, 16 days at 2.25		36 00	
do	Pay lists, wages of men employed		205 50	
do	Sundry persons, tools and postage		8 56	
				250 06
Commanda Bridge (Pringle)	L. Carr, services as overseer, 19 days at 2.25		42 75	
do	Pay lists, wages of men employed		209 61	
do	Sundry persons, timber, iron, spikes and tools		48 59	
				300 95
Chaffey Bridge	H. N. Gerhart, services as overseer, 7 days at 2.25		15 75	
do	Pay lists, wages of men employed		80 95	
				96 70
Carling 20 S L Road	J. Alves, services as overseer, 22 days at 2.25		49 50	
do	Pay lists, wages of men employed		240 00	
do	J. McGown, tools		10 45	
				299 95
Christie Tp. Road ..	Jno. Orr, services as overseer, 20 days at 2.25		45 00	
do	Pay lists, wages of men employed		253 45	
do	Jno. Orr, dynamite and postage		4 25	
				302 70
Croft Tp. Road	Jos. Bell, services as overseer, 20 days at 2.25		45 00	
do	Pay lists, wages of men employed		242 62	
do	Sundry persons, planks, dynamite and tools		12 36	
				299 98
Cardwell Road.....	G. J. Foreman, services as overseer, 21 days at 2.25		47 25	
do	Pay lists, wages of men employed		250 52	
do	Rutherford & Co., tools and postage		3 72	
				301 49

COLONIZATION ROADS.—*Continued.*

Croft and Hagarman Road	A. Brown, services as overseer, 15 days at 2.25	$33 75	
do	Pay lists, wages of men employed	49 50	
do	Sundry persons, cedar, dynamite and tools	16 75	
		100 00	
do	Less amount of account unpaid	10 00	
			$90 00
Commanda Bridge	J. Richer, services as overseer, 23½ day at 2.25	52 88	
do	Pay lists, wages of men employed	113 50	
do	Sundry persons, lumber, spikes, etc	64 63	
do	J. Richer, team hire	64 50	
			295 51
Cavendish Road	C. Coben, services as overseer, 12 days at 2.50	30 00	
do	Pay lists, wages of men employed	380 90	
			410 90
Cardiff Road	Wm. Ogilvie, services as overseer, 20¾ days at 2.25	46 67	
do	Pay lists, wages of men employed	244 27	
do	W. Ogilvie, tools	6 50	
			297 44
Calvin and Bonfield Road	D. Adams, services as overseer, 20 days at 2.25	45 00	
do	Pay lists, wages of men employed	255 00	
			300 00
Chisholm Roads	P. R. Owens, services as overseer, 14½ days at 2.25	32 62	
do	Pay lists, wages of men employed	127 50	
do	Sundry persons, tools	12 70	
do	J. Wright, team hire	28 00	
do	T. McCormack, services as overseer, 21 days at 2.25	47 25	
do	Pay lists, wages of men employed	198 84	
do	L. Graff, team hire	39 50	
do	Porter & Lawlor, tools	14 25	
do	P. Bogue, services as overseer, 21½ days at 2.25	48 38	
do	Pay lists, wages of men employed	175 90	
do	Sundry persons, team hire	71 75	
do	McKee, Porter & Co., tools	4 00	
			800 69
Carmichael Road	J. Carmichael, services as overseer, 8 days at 2.25	18 00	
do	Pay lists, wages of men employed	80 63	
do	J. Richardson, picks and postage	2 50	
			101 13
Caldwell and McPherson Road	E. Lafleur, services as overseer, 15 days at 2.25	33 75	
	Pay lists, wages of men employed	199 56	
do	Sundry persons, shovels, etc	6 20	
			239 51
Chandos Road	Wm Wilson, services as overseer, 10 days at 2.25	22 50	
do	Pay lists, wages of men employed	78 12	
			100 62
Caldwell No. 3 Rd	L. St. Cyr, services as overseer, 14½ days at 2.25	32 62	
do	Pay lists, wages of men employed	190 37	
do	Sundry persons, scraper, plank, etc	25 61	
			248 60
Coe Hill Road	Hy Johnson, services as overseer, 13 days at 2.25	29 25	
do	Pay lists, wages of men employed	169 10	
			198 35
Con. Line Eldon	L. McQuarrie, services as overseer, 11 days at 2.25	24 75	
do	Pay lists, wages of men employed	53 15	
do	Campbell & Smith, cedar, spikes and postage	4 60	
		82 50	
do	Deducted from overseer's time	50	
			82 00
Calvin No. 2 Road	Wm. Gale, services as overseer, 16 days at 2 25	36 00	
do	Pay lists, wages of men employed	132 33	
do	Sundry persons, tools and lodging for men	28 00	
			196 33
Carlow and Raglan Road	R. J. Campbell, services as overseer, 15 days at 2.25	33 75	
	Pay lists, wages of men employed	208 36	
do	Sundry persons, timber and tools	7 90	
			250 01
Cross Lake Road	H. G. Schmidt, services as overseer, 20 days at 2.25	45 00	
do	Pay lists, wages of men employed	238 88	
do	Sundry persons, tools, postage, etc	16 18	
			300 06
Cassimer Tp. Road	J. H. Boyd, services as overseer, 11 days at 2.25	24 75	
do	Pay lists, wages of men employed	175 25	
			200 00

COLONIZATION ROADS.—*Continued.*

Church and Brudenell Road...	E. Malone, services as overseer, 10 days at 2.25		$ 22 50	
do	Pay lists, wages of men employed		78 75	
do	E. Malone, scraper		3 00	
				$104 25
Caldwell Road.....	J. Larden, services as overseer, 8 days at 2.25		18 00	
do	Pay lists, wages of men employed		76 15	
do	Sundry persons, tools		7 00	
				101 15
Calvin Bridge	J. Wilson, services as overseer, 5½ days at 2.25		12 37	
do	Pay lists, wages of men employed		37 11	
do	A. E. Wilson, plank		52 00	
				101 48
Carden Road	F. Thompson, services as overseer, 3 days at 2.00		6 00	
do	Pay lists, wages of men employed		94 00	
				100 00
Caldwell No. 1 Rd..	L. Lassard, services as overseer, 4 days at 2.25		9 00	
do	Pay lists, wages of men employed		43 73	
do	Sundry persons, tools		2 25	
				54 98
Cordova Mining	J. B. McWilliams, paymaster			
Road	Pay lists, wages of men employed		757 76	
do	Sundry persons, team hire		28 00	
do	A. Leeson, right of way		15 00	
do	W. Coulter, plank		32 45	
do	Sundry persons, tools, blacksmithing, gravel, dynamite, etc.		93 16	
			926 37	
do	Less municipal grant		400 00	
				526 37
Dorion Township	Neil McDougall, paymaster			
Road	Pay lists wages of men employed		584 62	
do	A. Claud, groceries and supplies		240 71	
do	Marks & Co., blankets, etc		37 89	
do	Wells & Emmerson, tools and supplies		41 55	
				904 77
Dawson Road	Neil McDougall, paymaster			
do	Pay lists, wages of men employed		566 75	
do	Sundry persons, timber, tents, etc		95 15	
do	do provisions and supplies		127 85	
			789 75	
do	Less municipal grant		250 00	
				539 75
Devlin Road	J. A. Tierney, paymaster			
do	Pay lists, wages of men employed		1,589 26	
do	Sundry persons, groceries, provisions and supplies		486 72	
do	do transportation, freight and timber		57 03	
				2,133 01
Devlin and	J. A. Tierney, paymaster			
Woodyatt Road...	Pay lists, wages of men employed		328 26	
do	Sundry persons, tools, etc		24 45	
do	do provisions and supplies		80 15	
				432 86
Day Mills and	D. Bird, services as overseer, 20 days at 2.25		45 00	
Dayton Road.....	Pay lists, wages of men employed		226 50	
do	Sundry persons, lumber, spikes and tools		28 50	
				300 00
Dobie Road.....	J. A. Tierney, paymaster			
do	Pay lists, wages of men employed		228 01	
do	Sundry persons, axes and lumber		9 05	
do	do provisions and groceries		64 35	
				301 41
Desbarats Dock Rd.	T. Frances, balance 1901			10 00
Desbarats Dock and Bruce Mines Rd..	A. Flett, do			16 02
Dalton & Washago Road....	J. S. Jackson, do			74 37
Dilke and Morley Road	J. A. Tierney, do			29 55
Dunchurch Road...	J. Crosswell, services as overseer, 21¾ days at 2.25		48 94	
do	Pay lists, wages of men employed		245 87	
do	Sundry persons, lumber and blacksmithing		15 87	
				310 68
Darling and Lavant Road	C. S. Craig, services as overseer, 17 days at 2.25		38 25	
do	Pay lists, wages of men employed		199 12	
do	Sundry persons, cedar, gravel and postage		12 63	
				250 00

COLONIZATION ROADS.—*Continued.*

Dunnett & Cassimer Road	F. Dupins, services as overseer, 15 days at 2.25	$ 33 75	
do	Pay lists wages of men employed	269 40	
do	Sundry persons, scraper and freight	8 94	
		312 09	
do	To amount accountable	90 00	
			$402 09
Denbigh and Palmer Road	F. Walthers, services as overseer, 20 days at 2.25	45 00	
do	Pay lists, wages of men employed	243 75	
do	Sundry persons, scraper, shovels and postage	18 85	
			307 60
Dalhousie 9th Con. Road	Wm. Dunlop, services as overseer, 17 days at 2.25	38 25	
do	Pay lists, wages of men employed	357 48	
do	Sundry persons, tools and postage	4 27	
			400 00
Denbigh & Griffith Road	Paul Stien, services as overseer, 12¼ days at 2.25	27 56	
do	Pay lists, wages of men employed	121 38	
do	Sundry persons, cedar, etc	1 51	
			150 45
District Line Road	M. Leblanc, services as overseer, 25 days at 2.25	56 25	
do	Pay lists, wages of men employed	253 45	
do	Sundry persons, grind stone and tools	7 95	
		317 65	
do	Less amount of account unpaid	37 65	
			280 00
Dummer, 9 Con. Rd.	D. Sedgewick, services as overseer, 25 days at 2.25	56 25	
do	Pay lists, wages of men employed	425 40	
do	Sundry persons, tools, gravel, powder, etc	44 03	
			525 68
Dunnett and Kirkpatrick Road	D. H. Terry, services as overseer, 10 days at 2.25	22 50	
do	Pay lists, wages of men employed	177 50	
do	H. Cristianson, services as overseer, 14 days at 2.25	31 50	
do	Pay lists, wages of men employed	168 45	
do	P. Hickey, services as overseer, 8½ days at 2.25	19 13	
do	Pay lists, wages of men employed	176 64	
do	H. Montgomery, scraper	8 00	
			603 72
Delora Mine Road	P. Kirkegaard, paymaster		
do	Pay lists, wages of men employed	180 75	
do	Sundry persons, oil and coal	15 60	
			196 35
Denbigh and Lyndock Road	Wm. Chatson, services as overseer, 12 days at 2.25	27 00	
do	Pay lists, wages of men employed	117 50	
do	Sundry persons, powder, etc	5 95	
			150 45
Dummer Tp. Road	R. Crowe, services as overseer, 19 days at 2.25	42 75	
do	Pay lists, wages of men employed	203 73	
do	Sundry persons, tools	3 60	
		250 08	
do	Less Municipal Grant	100 00	
			150 08
Eton township			
do Road	Alex. Beatty, services as overseer, 14 days at 2.25	31 50	
do	Pay lists, wages of men employed	461 94	
do	Sundry persons, spikes, postage, etc.	3 06	
			496 50
Emo and Lash Rd	C. W. Hughes, services as overseer, 27 days at 2.50	67 50	
do	Pay lists, wages of men employed	298 45	
do	Sundry persons, timber and tools	19 30	
do	do do provisions and supplies	113 27	
			498 52
Elm Bay Road	J. D. Aaron, balance 1901		98 12
Eagle Lake Road	L. V. Smith, services as overseer, 19 days at 2.25	42 75	
do	Pay lists, wages of men employed	247 54	
do	S. R. Merrit & Co., shovels, etc	10 02	
			300 31
Edgington Road Bridge	B. Wickett, services as overseer, 18 days at 3.00	54 00	
do	Pay lists, wages of men employed	123 49	
do	Sundry persons, timber	81 81	
do	do do nails, spikes, dynamite, etc	17 48	
			276 78
Eldon Roads	G. Silverthorne, services as overseer, 14 days at 2.25	31 50	
do	Pay lists, wages of men employed	171 60	
do	G. McKerral, going over road	5 00	
			208 10

COLONIZATION ROADS.—*Continued.*

Eganville and D'Acre Road..	G. Lamarch, services as overseer, 20 days at 2.25	$ 45 00	
do	Pay lists, wages of men employed	232 50	
do	Sundry persons, plow, shovels, etc	25 55	
			$303 05
Franklin Road	Wm. Thompson, services as overseer, 11 days at 2.25	24 75	
do	Pay lists, wages of men employed	75 07	
			99 82
Franklin T'p. Road.	R. Hill, services as overseer, 20 days at 2.25	45 00	
do	Pay lists, wages of men employed	250 13	
do	White Bros., shovels, etc.	6 90	
			302 03
Foley T'p. Road....	R. McNaught, services as overseer, 25 days at 2.25	56 25	
do	Pay lists, wages of men employed	244 00	
			300 25
French River Valley Road..	J. L. A. McMurray, services as overseer, 32½ days, at 1.65	53 62	
do	Pay lists, wages of men employed	163 20	
do	Sundry persons, tools, barbed wire, etc	10 74	
		227 56	
do	Less amount of account unpaid	47 56	
			180 00
French River Valley Trail..	J. L. A. McMurray, balance, 1900		1 33
do	do do do 1901		45 25
Ferris Road, lot 14..	J. B. Pilon, services as overseer, 17 days at 2.25	38 25	
do	Pay lists, wages of men employed	139 13	
do	Sundry persons, tools, postage, etc	22 62	
			200 00
Ferris and Widdifield Road..	H. Marleau, services as overseer, 8 days at 2.25	18 00	
do	Pay lists, wages of men employed	83 85	
			101 85
Fraser and Alice Rd.	M. Honkie, services as overseer, 11 days, at 2.25	24 75	
do	Pay lists, wages of men employed	73 50	
do	T. Murray, tools, etc.	5 85	
			104 10
Ferris and Chisholm Road..	D. Robert, services as overseer, 21 days at 2.25	47 25	
do	Pay lists, wages of men employed	251 44	
do	Sundry persons, team hire, postage, etc	31 31	
			330 00
Ferris 8 and 9 Road.	E. Dufresne, services as overseer, 17 days at 2.25	38 25	
do	Pay lists, wages of men employed	126 75	
do	Sundry persons, teaming, dynamite, blacksmithing, etc.	85 00	
			250 00
Field No. 1 Road...	A. Hurtibise, services as overseer, 17 days at 2.25	38 25	
do	Pay lists, wages of men employed	216 20	
do	Levesque & Co., shovels, etc.	3 95	
			258 40
Freeman Mill Road.	J. M. Stoness, services as overseer, 18 days, at 2.25	40 50	
do	Pay lists, wages of men employed	241 87	
do	Sundry persons, tools, etc.	8 23	
		290 60	
do	Less amount of account unpaid	40 60	
			250 00
Ferris Road, lot 15 ..	S. Moreau, services as overseer, 14 days, at 2.25	31 50	
do	Pay lists, wages of men employed	141 00	
do	Sundry persons, teaming, tools, etc.	27 50	
			200 00
Field and Badgerow Road .	L. G. Parent, services as overseer, 20½ days at 2.25	46 12	
do	Pay lists, wages of men employed	155 64	
			201 76
Field No. 3 Road ..	R. Vezina, services as overseer, 20 days at 2.25	45 00	
do	Pay lists, wages of men employed	246 45	
do	Levesque & Co., tools, postage, etc.	15 40	
			306 85
Ferris 6 and 7 Road.	J. Hurtibise, services as overseer, 13 days at 2.25	29 25	
do	Pay lists, wages of men employed	112 20	
do	Sundry persons, tools, blacksmithing, etc.	6 80	
			147 25
Field No. 4 Road ..	M. Disarmeau, services as overseer, 9 days at 2.25	20 25	
do	Pay lists, wages of men employed	85 55	
			105 80
Great Northern Rd.	A. W. Cunningham, services as overseer, 30 days at 2.25	67 50	
do	Pay lists, wages of men employed	395 00	
do	Sundry persons, plank, iron, etc	37 50	
			500 00

COLONIZATION ROADS.—*Continued.*

Gordon Lake and Port Lock Road..	Services as overseer, 21 days at 2.25	$ 47 25	
do	Pay lists, wages of men employed	248 00	
do	Sundry persons, blacksmithing, etc	5 40	
			$300 65
Gordon Lake Road .	J. M. Fraser, balance 1901		20 02
Godin Creek Bridge.	J. Verin, do do		54 81
Grand Portage Rd..	M. Trivers, do 1900		15 82
Graham Bridge.....	N. Reid, do do		19 53
Grand Portage Rd..	Jno. Wilson, services as overseer	57 50	
do	Pay lists, wages of men employed	267 30	
do	Sundry persons, lumber and tools	31 90	
do	do blankets, provisions, etc	125 89	
			482 59
Goulais Bay Road ..	A. McGaulay, services as overseer, 8 days at 2.25	18 00	
do	Pay lists, wages of men employed	82 25	
			100 25
Great Nor' Rd. (Dunchurch)	W. Johnson, services as overseer, 27¼ days at 2.25	61 32	
do	Pay lists, wages of men employed	332 98	
do	Sundry persons, blacksmithing, tools, etc	6 00	
			400 30
Golden Valley and McConkey Road..	G. Dobbs, services as overseer, 25½ days at 2.25	57 38	
do	Pay lists, wages of men employed	335 87	
do	Sundry persons, tools, blacksmithing, postage, etc	7 55	
			400 80
Great Nor Road, (McKellar).	J. Thompson, services as overseer, 5 days at 2.25	11 25	
do	Pay lists, wages of men employed	58 00	
			69 25
Gannon's Narrows Road	R. Shaw, services as overseer, 13 days at 2 50	32 50	
do	Pay lists, wages of men employed	251 61	
			284 11
Garson and Neelon Road	S. Fortin, services as overseer, 18 days at 2.25	40 50	
do	Pay lists, wages of men employed.	149 24	
do	Sundry persons, tools and blacksmithing	10 70	
			200 44
Grassmere Road....	A. Walker, services as overseer, 6¾ days at 2.25	15 18	
do	Pay lists, wages of men employed	51 55	
do	Sundry persons, lumber, nails, etc	33 25	
			99 98
Garson 2 Con Road.	J. O'Neill, services as overseer, 22½ days at 2.25	50 63	
do	Pay lists, wages of men employed	225 00	
do	Sundry persons, tools, blacksmithing, etc	19 46	
			295 09
Gold Moose Mining Road	A. R. Hutchison, services as overseer, 25 days at 2.00	50 00	
do	Pay lists, wages of men employed	302 70	
do	Sundry persons, transportation, dynamite and tools	33 70	
do	do provisions and supplies	113 13	
			499 53
Grattan Mng Rd ...	D. J. McCuan, overseer, on account		450 00
Hallam Tp Rd	J. Toland, balance 1901		10 00
Hinchinbrooke Rd..	P. Finn do		49 75
Howe Island Rd....	A. Lachance, do		4 62
Hymer Roads	Neil McDougall, paymaster		
do	G. A. Michie, services as overseer, 16 days at 2.25	36 00	
do	Pay lists, wages of men employed	149 92	
(Gillies & O'Connor)	Pay lists, wages of men employed	995 50	
do	Sundry persons, tools and camp outfit	72 41	
do	do provisions and supplies	151 27	
			1,405 10
Harrow Tp. Road ..	A. Larriviere, services as overseer, 24 days at 2.25	54 00	
do	Pay lists, wages of men employed.	318 00	
do	Sundry persons, dynamite, tools, etc	28 00	
			400 00
Himsworth Road...	A. Brownlee, services as overseer, 26⅔ days at 2.25	59 62	
do	Pay lists, wages of men employed	242 28	
do	A. Brownlee, repair of tools	6 50	
			308 40
Himsworth and Nipissing Road...	J. Brownlee, services as overseer, 23⅜ days at 2.25	53 10	
do	Pay lists, wages of men employed	245 73	
do	Sundry persons, spikes, etc	1 63	
			300 46
Hardwood Lake Rd.	W. J. Ralph, services as overseer, 24 days at 2.25	54 00	
do	Pay lists, wages of men employed	187 50	
do	W. J. Ralph, plow	8 50	
			250 00
Hanmer Tp Road ..	N. Labelle, services as overseer, 22 days at 2.25	49 50	
do	Pay lists, wages of men employed	483 25	
			532 75

COLONIZATION ROADS.—*Continued.*

Hugel and Badgerow Road	C. A. M. Paradis, paymaster			
do	Pay lists, wages of men employed			$301 50
High Falls Road	D. Craig, services as overseer, 14½ days at 2.25	$ 32 62		
do	Pay lists, wages of men employed	180 50		
do	Sundry persons, tools, etc	14 55		
				227 67
Hyde Chute and Sanson Road	J. Fortin, services as overseer, 14½ days at 2.25	32 62		
do	Pay lists, wages of men employed	158 43		
do	J. Fortin, tools	8 95		
				200 00
Hagarty 25 and 26 Rd	P. Cybulski, services as overseer, 22 days at 2.25	50 00		
do	Pay lists, wages of men employed	255 33		
do	Sundry persons, plow, scraper and tools	14 67		
		320 00		
	Less amount of account unpaid	20 00		
				300 00
Head Tp. Rd.	J. Donnelly, services as overseer, 15 days at 2.25	33 75		
do	Pay lists, wages of men employed	252 25		
do	Sundry persons, plank, tools, etc	24 29		
				310 29
Hugel Tp. Rd	J. McLellan, services as overseer, 17 days at 2.25	38 25		
do	Pay lists, wages of men employed	197 73		
do	R. Lillie, dynamite, etc	14 64		
				250 62
Hagarty, 3 Con. Rd.	Wm. Verch, services as overseer, 17 days at 2.25	38 25		
do	Pay lists, wages of men employed	197 25		
do	Sundry persons, dynamite, tools, etc	14 50		
				250 00
Hanmer Roads	D. Frappier, services as overseer, 20 days at 2.25	45 00		
do	Pay lists, wages of men employed	309 33		
do	Sundry persons, lumber, nails, etc	48 45		
do	J. Lapine, services as overseer, 13 days at 2.25	29 25		
do	Pay lists, wages of men employed	122 38		
do	N. Farrent, services as overseer, 8¼ days at 2.25	18 56		
do	Pay lists, wages of men employed	82 07		
				655 04
Indian River Bridge.	J. M. Kennedy, services as overseer, 12 days at 2.25	27 00		
do	Pay lists, wages of men employed	83 75		
do	Sundry persons, timber and material	165 17		
				275 92
Isbester and Pt. Finlay Rd	D. McDonald, services as overseer, 30 days at 2.25	67 50		
do	Pay lists, wages of men employed	424 50		
do	Sundry persons, tools, etc	8 00		
				500 00
Indian Peninsula Rd	D. Butchart, overseer, on account			140 00
Inspection	A. Morrison, balance 1901			40 00
do	J. A. Tierney, do 1899			3 25
do	do do 1901			3 61
do	C. F. Aylsworth, do 1899			27 65
do	do do 1901			410 25
do	do services as Inspector 1902, 166 days at 7.00	1,162 00		
do	do R.R. fares, expenses, postage, etc	51 25		
				1,213 25
do	Jno. F. Boyd, services as Inspector, 136 days at 7.00	952 00		
do	do rent of storehouse	20 00		
do	do R.R. fares, expenses, postage, etc	167 25		
				1,139 25
do	N. Lounsbury, services as Inspector, 186 days at 7.00	1,302 00		
do	do R.R. fares, expenses, postage, etc	70 40		
				1,372 40
do	Jno. McCracken, services as Inspector, 135 days at 5.00	675 00		
do	do steamboat fares, expenses, postage, etc	112 30		
		787 30		
	Less amount of account unpaid	387 30		
				400 00
do	N. McDougall, services as Inspector, 198 days at 7.00	1,386 00		
do	do stationery, postage, telegrams and insurance	22 73		
do	do rent of office, 12 months	60 00		
do	do balance 1901 account	120 00		
				1,588 73
do	A. Morrison, services as Inspector, 124 days at 5 00			620 00
do	B. Wickett, services as Inspector, 145 days at 5.00	725 00		
do	do R.R. fares, postage, etc	17 80		
				742 80

COLONIZATION ROADS.—*Continued.*

Inspection	J. A. Tierney, services as Inspector, 289 days at 5.00	$1,445 00	
do	do R.R. fare, canoe hire, postage, stat'nery, etc.	269 90	
		1,714 90	
do	do less amount of account unpaid	124 25	
			$1,590 65
Johnson's Bridge	R. Gamble, services as overseer, 18 days at 2.25	40 50	
do	Pay lists, wages of men employed	100 00	
do	W. Johnson, lumber	97 40	
do	Sundry persons, tools, blacksmithing, postage, etc	44 15	
			282 05
Jaffray Tp. Rd	G. Alcock, services as overseer, 27 days at 2.25	67 50	
do	Pay lists, wages of men employed	348 63	
			416 13
Jack's Lake Rd	P. W. Shewan, balance 1901		10 00
Jack's Lake Rd	N. Ansley, services as overseer, 14½ days at 2.25	32 62	
do	Pay lists, wages of men employed	136 30	
			194 00
Joly Rd	Jno. Christie, services as overseer, 14½ days at 2.25	32 62	
do	Pay lists, wages of men employed	163 50	
do	Sundry persons, axes, postage, etc	2 55	
			198 67
Joly Bridge	Wm. Fleming, services as overseer, 16 days at 2.25	36 00	
do	Pay lists, wages of men employed	154 60	
do	Sundry persons, timber	90 08	
do	do spikes, rope, blacksmithing, postage, etc	4 30	
			284 98
Jones Falls and Battersea Rd	R J. Boal, services as overseer, 26 days at 2.25	58 50	
do	Pay lists, wages of men employed	240 00	
do	M. Vanluven, tools	12 32	
do	S. Jamieson, overseer on account	95 00	
			405 82
Kirkpatrick Rd, 5th and 6th con	A. Hamilton, balance 1901		50 00
Kirkpatrick Rd.	F. Pedro, do		2 94
Korah Rd	P. George, services as overseer, 17 days at 2 25	38 25	
do	Pay lists, wages of men employed	212 15	
			250 40
Killaloe and Bonnechere Rd	Antoine Afleski, services as overseer, 26 days at 2.25	58 50	
do	Pay lists, wages of men employed	332 17	
do	Sundry persons, shovels, etc	10 33	
			401 00
Killaloe Stn. Road	M. Roche, services as overseer, 26 days at 2.25	58 50	
do	Pay lists, wages of men employed	179 39	
do	Sundry persons, tools, etc	13 55	
		251 44	
do	Less overseer's time	7 00	
			244 44
Kirkpatrick, Con. 5 Rd	F. Pedro, services as overseer, 19¾ days at 2.25	44 43	
do	Pay lists, wages of men employed	143 03	
do	A. Hamilton, plow and tools	22 10	
		209 56	
do	Less overseer's time	5 00	
			204 56
Keenan Rd	W. Mellon, services as overseer, 14 days at 2.25	31 50	
do	Pay lists, wages of men employed	168 35	
			199 85
Kingston and Perth Rd	T. O'Connor, services as overseer, 18 days at 2.25	40 50	
do	Pay lists, wages of men employed	245 00	
do	Sundry persons, scraper and tools	14 50	
			300 00
Kaladar and Massanoga Rd.	E. Mellon, services as overseer, 17¼ days at 2.25	38 81	
do	Pay lists, wages of men employed	159 69	
do	Sundry persons, provisions, supplies, tools, etc	51 50	
			250 00
Kashabowie Mining Rd	Neil McDougall, paymaster.		
do	Pay lists, wages of men employed	536 20	
do	Sundry persons, provisions and supplies	193 27	
do	do stove, blankets and material	115 95	
			845 42
Lonsdale and Bridgewater Rd	D. G. Larkin, balance 1901		25 00
Lavant Rd	A. Desjardine, do		9 00
Lybster Rd	Neil McDougall, paymaster.		
do	Pay lists, wages of men employed	512 75	
do	Wells & Emmerson, shovels, etc	39 46	
			552 21

COLONIZATION ROADS.—*Continued.*

Little Current and Providence Bay Rd	Hy. Skippen, services as overseer, 21 days at 2.25		$ 47 25	
do	Pay lists, wages of men employed		331 50	
do	Sundry persons, tools, postage, etc		23 65	
				$402 40
Lash and Aylsworth Rd.	W. J. Anderson, services as overseer, 33 days at 2.50		82 50	
do	Pay lists, wages of men employed		295 01	
do	Sundry persons, provisions and supplies		125 87	
			503 38	
do	Less amount of account unpaid		3 38	
				500 00
Leg Lake Rd	R. A. Miller, services as overseer, 14 days at 2.25		31 50	
do	Pay lists, wages of men employed		162 77	
do	Sundry persons, tools, dynamite and blacksmithing		7 52	
				201 79
Lamb Lake Bridge	E. Cook, services as overseer, 12 days at 2 25		27 00	
do	Pay lists, wages of men employed		89 70	
do	Sundry persons, lumber		77 43	
do	do bolts, iron, nails, etc		14 27	
				208 40
Lindsay and St. Edmunds Rds.	N. McCallum, services as overseer, 11 days at 2 25		24 75	
do	Pay lists, wages of men employed		125 24	
do	D. S. McLay, services as overseer, 12¾ days at at 2.25		28 68	
do	Pay lists, wages of men employed		171 90	
do	J. Bickell, services as overseer, 9 days at 1.50		13 50	
do	Pay lists, wages of men employed		129 50	
(West Albermarle)	E. Kyte, services as overseer, 6 days at 2.25		13 50	
do	Pay lists, wages of men employed		88 10	
do	M. Smith, services as overseer, 10 days at 2.25		22 50	
do	Pay lists, wages of men employed		127 50	
do	J. Bickell, shovels, etc		5 30	
				750 47
Lanark Rd	Thos. King, services as overseer, 21 days at 2.25		47 25	
do	Pay lists, wages of men employed		252 53	
				299 78
Lyndock and Sebastopol Rd.	A. Wieland, services as overseer, 20 days at 2.25		45 00	
do	Pay lists, wages of men employed		184 60	
do	Sundry persons, scraper, plow and tools		44 89	
			274 49	
do	To be accounted for		5 51	
				280 00
Loughboro Central Rd.	Thos. O'Connor, services as overseer, 18 days at 2.25		40 50	
do	Pay lists, wages of men employed		209 50	
				250 00
Lilly Lake Rd	T. H. Graham, services as overseer, 10 days at 2.25		22 50	
do	Pay lists, wages of men employed		315 48	
do	Sundry persons, gravel, lumber, etc		62 02	
			400 00	
	Less municipal grant		200 00	
			200 00	
do	Less amount of account unpaid		20 00	
				180 00
La France Rd	O. La France, services as overseer, 4½ days at 2 25		10 13	
do	Pay lists, wages of men employed		40 48	
				50 61
Long Lake Mining Rd.	N. McDougall, paymaster			
do	Pay lists, wages of men of men employed		294 86	
do	J. Walker, board of men		165 60	
do	C.P.R., freight		3 96	
				464 42
Macaulay and Stephenson Rd	B. Wickett, balance 1901			34 39
do Bridge	P. Leeder, do			15 10
Methuen Rd	J. W. Ratcliffe, do			29 86
Magnetewan Rd	T. Stewart, do			20 60
McPherson Rd	A. Langlois, do			5 68
Mather & Dobie Rd.	W. J. Westover, services as overseer, 39 days at 2.50		97 50	
do	Pay lists, wages of men employed		418 38	
do	M. T. Cathcart, provisions and supplies		155 12	
do	Sundry persons, material and tools		27 50	
			698 50	
do	Less overseer's time		20 00	
				678 50

COLONIZATION ROADS.—*Continued.*

Matheson Bay Rd ..	Neil McDougall, paymaster		$261 50
do	Pay lists, wages of men employed		
Morley and Shenstone Rd	H. F Oster, services as overseer, 17 days at 2.50	$ 42 50	
do	Pay lists, wages of men employed	166 00	
do	Sundry persons, crossway timber	359 00	
do	do provisions and supplies	129 39	
			696 89
Morley T. L. Rd ...	H. F. Oster, services as overseer, 93 days at 2.50	232 50	
do	Pay lists, wages of men employed	1,378 17	
do	Sundry persons, crossway timber	279 50	
do	do provisions, supplies, tools, etc	598 52	
			2,398 69
May Con. 1 Rd.....	J. Laflambois, services as overseer, 14 days at 2.25	31 50	
do	Pay lists, wages of men employed	165 50	
do	H. Capes, machine repairs	3 00	
			200 00
Meldrum Bay and Silver Water Rd	G. Cook, services as overseer, 19 days at 2.25	42 75	
do	Pay lists, wages of men employed	355 31	
do	Sundry persons, tools, blacksmithing, etc	12 73	
			410 79
Manitowaning and Sheguiandah Rd	A. Hughson, services as overseer, 19 days at 2.25	42 75	
do	Pay lists, wages of men employed	259 80	
do	Sundry persons, tools	5 00	
			307 55
Marks Tp. Rd.....	N. McDougall, paymaster		
do	Pay lists, wages of men employed	382 62	
do	Sundry persons, tent, tools, etc	31 78	
do	do provisions and supplies	78 00	
			492 40
Mine Centre Rd	C. Kerr, services as overseer, 33 days at 2.50	82 50	
do	Pay lists, wages of men employed	736 16	
do	Sundry persons, tents, lumber, fares, freight and tools	174 15	
do	do provisions and supplies	291 85	
			1,284 66
McIntyre and Gorham Rd	N. McDougall, paymaster		
do	Pay lists, wages of men employed	613 12	
do	Sundry persons, provisions and supplies	117 74	
do	Wells & Emmerson, drift bolts and iron	13 55	
			744 41
McGregor Tp. Rd...	N. McDougall, paymaster		
do	Pay lists, wages of men employed	671 85	
do	Sundry persons, provisions and supplies	181 02	
			852 87
McIrvine Rd. (drain)	S. J. Gillon, laying out drain	28 00	
do	Services of laborer, etc	19 00	
			47 00
Matchedash and Orillia Road.	D. Hall, services as overseer, 23 days at 2.25	51 75	
do	Pay lists, wages of men employed	285 17	
	Sundry persons, tools, etc	13 65	
			350 57
McConkey 2 Con. Road.	A. W. Sinclair, services as overseer, 25 days at 2.25	56 25	
do	Pay lists, wages of men employed	234 68	
	Sundry persons, tools	10 07	
			301 00
McKenzie Tp. Rd ..	W. Leitch, services as overseer, 18 days at 2.25	40 50	
do	Pay lists, wages of men employed	153 37	
do	M. Leitch, tools	6 03	
			199 90
Machar 5 S. L. Rd..	A. Munroe, services as overseer, 7 days at 2.25	15 75	
do	Pay lists, wages of men employed	84 25	
			100 00
McMurrich Road ...	Jno. Stewart, services as overseer, 19 days at 2.25	42 75	
do	Pay lists, wages of men employed	242 25	
do	Sundry persons, plank and tools	13 35	
			298 35
Machar 10 S. L. Rd.	G. Rolston, services as overseer, 10 days at 2.25	22 50	
do	Pay lists, wages of men employed	127 50	
			150 00
McMurrich 12 Con. Road.	W. Thompson, services as overseer, 8 days at 2.25	18 00	
	Pay lists, wages of men employed	83 79	
do	W. M. Crow, repairs	46	
			102 25
Martland Tp. Rd...	C. Monette, services as overseer, 22 days at 2.25	49 50	
do	Pay lists, wages of men employed	354 35	
do	G. Levesque, tools	14 00	
			417 85

COLONIZATION ROADS.—*Continued.*

Mattawan Tp. Rd ..	W. P. Nadeau, services as overseer, 13½ days at 2.24.....	$ 30 38		
do	Pay lists, wages of men employed	162 38		
do	Sundry persons, tools, etc	7 35		
				$200 11
do	Wm. Murphy, overseer, on account			190 00
Methuen Road	J. W. Ratcliffe, services as overseer, 20 days at 2.25	45 00		
do	Pay lists, wages of men employed	261 50		
do	J. W. Ratcliffe, plank	7 00		
				313 50
Minogue Road.....	Jno. Minogue, services as overseer, 14 days at 2.25.....	31 50		
do	Pay lists, wages of men employed	176 87		
				208 37
Machar Road.....	J. C. Unger, services as overseer, 9 days at 2.25..... .	20 25		
do	Pay lists, wages of men employed	179 62		
				199 87
Monteith Road.....	J. Daly, services as overseer, 15½ days at 2.25	34 87		
do	Pay lists, wages of men employed	262 24		
do	Sundry persons, scraper, tools, etc	24 76		
				321 87
Musquosh Road	Thos. Currie, services as overseer, 26 days at 2.25	58 50		
do	Pay lists, wages of men employed	340 08		
do	Sundry persons, tools	8 60		
				407 18
Muskoka Road	Jno. McNee, services as overseer, 9 days at 2.25....	20 25		
do	Pay lists, wages of men employed	75 75		
do	Sundry persons, plank and spike	4 00		
				100 00
Macaulay Road	G. Howard, services as overseer, 17 days at 2.25.....	38 25		
do	Pay lists, wages of men employed	204 00		
do	W. H. Brown, plank	7 75		
				250 00
McMurrich and Monteith Road.	M. Farrell, services as overseer, 22½ days at 2.25.....	50 62		
	Pay lists, wages of men employed	240 26		
do	Sundry persons, tools	9 10		
		299 98		
do	Less unexpended balance, 1901	2 71		
				297 27
Muskoka Road (Orillia).	A. W. Trimble, services as overseer, 13 days at 2.25	29 25		
	Pay lists, wages of men employed	215 62		
do	Sundry persons, blacksmithing, etc	7 30		
				252 17
Morrison Road	Wm. Semple, services as overseer, 14 days at 2.25	31.50		
do	Pay lists, wages of men employed	163 38		
do	Sundry persons, tools, etc	6 13		
				201 01
Maple Lake Road ..	Wm. Wilson, services as overseer, 59 days 2.25	132 75		
do	Pay lists, wages of men employed..	867 25		
				1,000 00
Millins Bridge.....	A. Badger, services as overseer, 17 days at 2.25	38 25		
do	Pay lists, wages of men employed	96 00		
do	Sundry persons, right of way, timber, spikes, etc	91 00		
				225 25
Morrison Lake Rd..	J. D. Smith, services as overseer, 6 days at 2.25	13 50		
do	Pay lists, wages of men employed	86 60		
				100 10
Magnetewan and Depot Harbor Rd.	D. Jenkins, services as overseer, 24½ days at 2.25	55 12		
	Pay lists, wages of men employed	338 09		
do	Sundry persons, tools, etc	6 79		
				400 00
Maley Road.....	J. Kirwin, services as overseer, 20 days at 2.25.....	45 00		
do	Pay lists, wages of men employed	235 25		
do	Sundry persons, plow and tools.....	20 40		
				300 65
Martland Roads....	D. Boudwin, services as overseer, 14 days at 2.25.....	31 50		
do	Pay lists, wages of men employed.....	212 42		
do	J. Beaford, tools and postage	13 38		
do	M. Guerin, services as overseer, 16 days at 2.25	36 00		
do	Pay lists, wages of men employed.....	191 27		
do	Sundry persons, tools, blacksmithing, etc.....	21 45		
				506 02
Marlbank Road.....	J. Taylor, services as overseer, 18 days at 2.25	42 75		
do	Pay lists, wages of men employed.....	200 60		
do	Sundry persons, tools and postage....	9 65		
				253 00

COLONIZATION ROADS.—*Continued.*

Monteagle Road	P. Rody, services as overseer, 22 days at 2.25	$ 49 50	
do	Pay lists, wages of men employed.....	240 50	
do	W. Moran, right of way	15 00	
do	Sundry persons, tools	9 00	
			$314 00
Mud Lake Road....	P. Greene, services as overseer, 16½ days at 2.25	37 12	
do	Pay lists, wages of men employed	136 11	
do	P. Greene, cedar	20 73	
do	Sundry persons, tools.....	7 04	
do	Wm. Yike, services as overseer, 20 days at 2.25.....	45 00	
do	Pay lists, wages of men employed.	225 75	
do	Sundry persons, tools, etc.....	36 95	
		508 70	
do	Less amount of account unpaid.....	27 70	
			481 00
Monck Road..... .	T. McDermott, services as overseer, 16 days, at 2.25	36 00	
do	Pay lists, wages of men employed	214 36	
			250 36
Markstay and	L. McDonald, on account.	.....	180 00
Warren Road.....	J. A. McMaster, do		180 00
do	A. Lefebre, do		200 00
McPherson and	F. Presse, services as overseer, 18 days at 2.25.....	40 50	
Kirkpatrick Rd...	Pay lists, wages of men employed....	254 90	
do	Sundry persons, tools	4 60	
			300 00
McPherson Road...	J. Snobb, services as overseer, 24 days at 2.25.....	54 00	
do	Pay lists, wages of men employed	257 70	
do	Sundry persons, tools.....	9 30	
			320 90
McArthur Mills ...	J. Beaudrie, services as overseer, 21½ days at 2.25	48 38	
do Road	Pay lists, wages of men employed	256 85	
			305 23
McGrath Road	F. Haas, services as overseer, 13½ days at 2.25..	30 37	
do	Pay lists, wages of men employed	150 25	
do	Sundry persons, plow and tools.....	21 87	
			202 49
Manitou Portage Rd.	Neil McDougall, paymaster.....		
do	Pay lists, wages of men employed	149 25	
do	Sundry persons, board of men.....	87 15	
do	do transportation and tools	35 00	
			271 40
Nipissing Road....	T. Stewart, balance 1901..... ..		19 90
N. Himsworth Rd ..	A. McDonald, do		34 35
Nairn and Webb-	J. Currier, services as overseer, 20 days at 2.00.....	40 00	
wood Road	Pay lists, wages of men employed.....	308 35	
do	Sundry persons, tools and blacksmithing.....	73 00	
do	do provisions and supplies.	86 40	
			507 75
Neebing, 15 and 16	N. McDougall, paymaster		
Road.	Pay lists, wages of men employed.....	625 25	
do	Sundry persons, provisions and supplies.....	107 62	
			732 87
Nellis and Pat-	R. Tilson, services as overseer 22 days at 2.50.....	55 00	
tullo Road.....	Pay lists, wages of men employed.....	183 41	
do	Sundry persons, tents, transportation and camp outfit..	103 35	
do	do provisions and groceries.....	75 00	
			416 76
Novar and	W. Johnson, services as overseer, 19¼ days at 2.25	43 31	
Ilfracombe Road .	Pay lists, wages of men employed.....	246 15	
do	Sundry persons, dynamite, blacksmithing, etc....	10 66	
			300 12
N. Himsworth Rd..	A. McDonald, services as overseer, 14 days at 2.25	31 50	
do	Pay lists, wages of men employed and postage	88 64	
			120 14
Northern Road	B. Wickett, services as overseer, 15 days at 3 00.....	45 00	
Bridge ...	Pay lists, wages of men employed.....	126 50	
do	A. Wood, timber.....	157 83	
do	Sundry persons, iron, spikes, freight, etc	26 01	
			355 34
Nipissing 10 S. L. ..	J. Storie, services as overseer, 15½ days at 2 25..... .	34 87	
Road	Pay lists, wages of men employed	245 21	
do	Sundry persons, tools	18 12	
			298 20
Nor. West Road....	F. Francis, services as overseer, 26 days at 2.25..	58 50	
do	Pay lists, wages of men emmployed...	331 12	
do	Sundry persons, tools	16 80	
			406 42

COLONIZATION ROADS.—*Continued.*

North Cardwell ...	W. McKelvey, services as overseer, 24 days at 2.25	$ 54 00	
Road ...	Pay lists, wages of men employed	256 40	
do	Sundry persons, tools	8 20	
			$318 60
Neville Road	W. Haines, services as overseer, 20 days at 2 25	45 00	
do	Pay lists, wages of men employed	235 69	
do	Sundry persons, tools and dynamite	25 05	
			305 74
Nipissing Road ...	Wm. Adams, services as overseer, 25 days at 2.25	56 25	
do	Pay lists, wages of men employed	325 60	
do	Sundry persons, tools and plank	18 26	
			400 11
N. Harvey Road ...	R. Shaw, services as overseer, 13 days at 2.50	32 50	
do	Pay lists, wages of men employed	369 17	
			401 67
N. Burleigh Road ..	T. G. Eastland, services as overseer, 26 days at 2.50	65 00	
do	Pay lists, wages of men employed	210 60	
do	Sundry persons, tools	4 40	
			280 00
N. Shore Road	A. Campbell, services as overseer, 18 days at 2.25	40 50	
do	Pay lists, wages of men employed	237 25	
			277 75
N. Algona Road ...	L. Berndt, services as overseer 21½ days at 2 25	48 37	
do	Pay lists, wages of men employed	242 70	
do	Sundry persons, timber, plow and tools	61 70	
			352 77
Neelon Road.....	T. Rochon, services as overseer, 17¾ days at 2.25	39 93	
do	Pay lists, wages of men employed	153 13	
do	Sundry persons, tools	7 28	
			200 34
Opeongo Road ...	T. Culhane, balance 1901		23 05
Oliver Tp. Road	N. McDougall, paymaster		
do	Pay lists, wages of men employed	362 99	
do	Sundry persons, provisions, supplies and tents, etc	139 11	
			502 10
Orange Valley Rd..	R. Morrison, services as overseer, 28 days at 2.25	63 00	
do	Pay lists, wages of men employed	238 50	
			301 50
Oakley and	Jno. Boyes, services as overseer, 14 days at 2.25	31 50	
Draper Road	Pay lists, wages of men employed	157 24	
do	Sundry persons, tools, etc	10 95	
			199 69
Oka Road	F. Decaire, services as overseer, 18 days at 2.25	40 50	
do	Pay lists, wages of men employed	259 59	
			300 09
Opeongo Road	J. Doyle, services as overseer, 20 days at 2.25	45 00	
(Brennan's Ck)....	Pay lists, wages of men employed	245 00	
do	Sundry persons, tools and dynamite	25 10	
			315 10
Perth Road	S. Jamieson, balance 1901		28 63
Pandash Lake Rd ..	D. H. Kelly, do		41 85
Papineau Ck Road..	A. Barr, do		56 21
Patton Road ..	R. Hale, do		10 27
Proudfoot Road .. .	E. Cook, do		36 16
Paipoonge and	Neil McDougall, paymaster		
Blake Road	Pay lists, wages of men employed	554 00	
do	Sundry persons, plank, iron, bolts and material	106 30	
do	do provisions and supplies	271 36	
			931 66
Paipoonge—	Neil McDougall, paymaster		
O'Connor Road ...	Pay lists, wages of men employed	360 62	
do	Sundry persons, dynamite, material and provisions	148 68	
			509 30
Paipoonge and	D. J. Piper, services as overseer, 10 days at 2.25	22 50	
Neebing Road....	Pay lists, wages of men employed	131 25	
do	Sundry persons, timber, nails and provisions	46 25	
			200 00
Pattullo Road	J. A. Tierney, paymaster		
do	Pay list, wages of men employed	295 29	
do	Sundry persons, timber, material, tools and provisions	110 11	
			405 40
Patton Road	D. McLachlin, services as overseer, 16 days at 2.25	36 00	
do	Pay lists, wages of men employed	267 37	
			303 37
Prince Tp. Road....	F. C. Thomas, services as overseer, 15½ days at 2.25	34 88	
do	Pay lists, wages of men employed	262 50	
do	Northern Hardware Co., dynamite, etc	2 62	
			300 00

COLONIZATION ROADS.—*Continued.*

Parry Sound Road..	A. Clarkson, services as overseer, 20 days at 2.25	$ 45 00	
do	Pay lists, wages of men employed	240 02	
do	Sundry persons, lumber and tools	19 00	
			$304 02
Port Carling Road..	J. Davidson, services as overseer, 13½ days at 2.25	30 38	
do	Pay lists, wages of men employed	99 38	
do	Sundry persons	3 60	
			133 36
Perry & Chaffey Rd.	J. J. Anderson, services as overseer, 32 days at 2.25	72 00	
do	Pay lists, wages of men employed	380 82	
		452 82	
do	Less contribution	352 82	
			100 00
Papineau Roads....	J. Gilligan, services as overseer, 27 days at 2.25	60 75	
do	Pay lists, wages of men employed	344 48	
do	Sundry persons, timber and tools	42 82	
			448 05
Papineau Riv. Bdge.	N. T. Armstrong, services as overseer, 21 days at 2.25	47 25	
do	Pay lists, wages of men employed	325 50	
do	Sundry persons, timber, tools, etc	74 55	
			447 30
Perth Road	W. Ritchie, services as overseer, 18 days at 2.25	40 50	
do	Pay lists, wages of men employed	197 25	
do	Sundry persons, scraper and tools	22 50	
			260 25
Pembroke and Eganville Road	S. Chusriskie, services as overseer, 23 days at 2.25	51 75	
do	Pay lists, wages of men employed	181 88	
do	Sundry persons, plow and tools	10 90	
			244 53
Paugh Lake Road ..	P. Paubliskie, services as overseer, 20 days at 2.25	45 00	
do	Pay lists, wages of men employed	237 50	
do	Sundry persons, tools	17 25	
			299 75
Petewawa Road	C. Brumm, services as overseer, 16¼ days at 2.25	36 56	
do	Pay lists, wages of men employed	201 35	
do	Sundry persons, cedar and tools	12 09	
			250 00
Pembroke and Mattawa Road	N. Harvey, services as overseer, 38½ days at 2.25	86 62	
do	Pay lists, wages of men employed	357 62	
do	Sundry persons, timber, material and tools	46 25	
		490 49	
	Less amount not remitted..	49	
			490 00
Pembroke Bridge...	Wm. Selkirk, services as overseer, 13 days at 2.25	29 25	
do	Pay lists, wages of men employed	172 60	
			201 85
Papineau Road and Bridge	T. J. Peria, services as overseer, 26 days at 2.25	58 50	
do	Pay lists, wages of men employed	361 50	
do	Sundry persons, lumber and tools	37 75	
			457 75
Proof Line Road ...	Geo. Sweeney, services as overseer, 21 days at 2.25	47 25	
do	Pay lists, wages of men employed	189 00	
do	Sundry persons, tools, etc	13 00	
			249 25
Ratter Road	J. French, balance 1901		10 70
Rockingham Road..	J. Scully, do		4 40
Ruther Glen Rd....	W. Farmer, do		1 79
Rainy River Roads .	J. A. Tierney, paymaster		
1st Section	Pay lists, wages of men employed	322 49	
do	Sundry persons, stove, tent and supplies	113 80	
do	do provisions and groceries	90 83	
2nd Section	Pay lists, wages of men employed	715 67	
do	Sundry persons, provisions, supplies, tools, etc	279 39	
3rd Section.....	Pay lists, wages of men employed	538 78	
do	Sundry persons, crossway timber, tools and provisions	369 91	
4th Section.....	Pay lists, wages of men employed	727 01	
do	Sundry persons, provisions, material, tools & transportat'n	276 22	
		3,434 10	
	To be accounted for	18 08	
			3,452 18

COLONIZATION ROADS.—*Continued.*

Rainy River Bridges	J. A. Tierney, paymaster			
McQuade's Bdge	Pay lists, wages of men employed		$187 62	
do	Sundry persons, timber, iron, material and provisions		118 54	
Bartley's Bdge..	Pay lists, wages of men employed		195 58	
do	Sundry persons, timber, iron, freight and provisions		222 34	
Cameron Bdge..	Pay lists, wages of men employed		287 58	
do	Sundry persons, lumber, iron, material and provisions		504 50	
				$1,516 16
Roddick, Crozier and	J. A. Tierney, paymaster—			
Miscampbell Rd	Pay lists, wages of men employed		1,794 49	
do	J. Muggleberry, crossway, timber		172 50	
do	L. Christie, meat..		112 40	
do	O. Jalbert, groceries and provisions		217 80	
do	Sundry persons do and supplies		347 33	
			2,644 52	
do	Less amount of account unpaid		32 01	
				2,612 51
Rayside Road	M. Lauzon, services as overseer, 17 days at 2.25		38 25	
do	Pay lists, wages of men employed		209 53	
do	J. Perry, blacksmithing		2 50	
				250 28
Rat Portage Road..	Geo. Alcock, services as overseer, 21 days at 2.50		52 50	
do	Pay lists, wages of men employed		335 10	
do	Sundry persons, timber, dynamite, tools, etc		131 52	
				519 12
Ryde Road	Jno. S. Jackson, services as overseer, 21 days at 2 25		47 25	
do	Pay lists, wages of men employed		231 26	
do	Sundry persons, stumping machine, tools, etc		27 35	
				305 86
Ryerson Road.. ..	C. Brant, services as overseer, 18 days at 2.25		40 50	
do	Pay lists, wages of men employed		163 38	
do	C. Brent, blacksmithing		62	
				204 50
Ridout Road	C. Allan, services as overseer, 18½ days at 2.25		41 62	
do	Pay lists, wages of men employed		195 37	
do	Sundry persons, timber and tools		12 70	
				249 69
Road, Carling Tp...	A. Thompson, services as overseer, 23 days at 2.00		46 00	
do	Pay lists, wages of men employed		251 65	
do	A. A. Fenn, tools		2 35	
				300 00
Radcliffe and Raglan				
Road	M. Kopotoski, services as overseer, 17 days at 2.25		38 25	
do	Pay lists, wages of men employed		191 75	
				230 00
Railton Road	L. Cranston, services as overseer, 22 days at 2.25		49 50	
do	Pay lists, wages of men employed		219 35	
do	Sundry persons, plow, scraper and tools		36 80	
				305 65
Ross Tp. Roads	A. Rothwell, services as overseer, 17 days at 2.00		34 00	
do	Pay lists, wages of men employed		111 05	
do	Sundry persons, powder and tools		5 00	
do	F. Crozier, services as overseer, 21 days at 2.25		47 25	
do	Pay lists, wages of men employed		218 10	
do	Sundry persons, plow, tools and timber		34 65	
				450 05
do	J. R. McDonald, overseer, on account			140 00
Ryan Road	Jno. Walthers, services as overseer, 20 days at 2.25		45 00	
do	Pay lists, wages of men employed		249 50	
do	Sundry persons, tools and supplies		8 13	
				302 63
Seguin River Bridge	B. Wickett, balance 1901			118 99
Stanley Corbett's Rd	N. McDougall do do			103 00
Sanford Tp. Road..	do do do			35 32
St. Joseph Is'ld Rd.	J. Pritchard do do			10 37
Stephenson and Mac-				
aulay Road	J G. Bruce do do			14 61
S. Algona Road	M. Quigley do 1898			32 27
Scramble Mine Road	G. H. Alcock, services as overseer, 34 days at 2.50		85 00	
do	Pay lists, wages of men employed		397 74	
do	Sundry persons, tools and blacksmithing		26 80	
				509 54
Sanford Tp. Road...	N. McDougall, paymaster—			
do	Pay lists, wages of men employed		233 37	
do	Sundry persons, tools and board of men		83 80	
				317 17

COLONIZATION ROADS.—*Continued.*

Scoble Tp. Road....	N. McDougall, paymaster—		
do	Pay lists, wages of men employed	$299 75	
do	Sundry persons, lumber and supplies	36 65	
			$336 40
Shenstone&Dobie Rd	W. J. Westover, services as overseer, 34 days at 2.50	85 00	
do	Pay lists, wages of men employed	811 21	
do	M. T. Cathcart, groceries and provisions	216 24	
do	Sundry persons do do	38 58	
do	do camp outfit, tents and postage	128 35	
			1,279 38
Salter Tp. Road	P. Helferty, services as overseer, 28 days at 2.25	63 00	
do	Pay lists, wages of men employed	235 50	
do	B. Shields, plow	1 50	
do	Municipality of Salter, building scow	50 00	
			350 00
Silver Mountain Rd.	N. McDougall, paymaster—		
do	Pay lists, wages of men employed	439 37	
do	Sundry persons, timber material, supplies and provisions	64 35	
			503 72
Strange Tp. Road...	Neil McDougall, paymaster—		
do	Pay lists, wages of men employed		149 25
Stanley Corbett's Rd	Neil McDougall, paymaster—		
do	Pay lists, wages of men employed	1,954 49	
do	W. F. Hogarth, groceries and provisions	412 95	
do	Sundry persons do do	182 30	
do	C. L. Kenny, meat	189 47	
do	Sundry persons, camp outfit, tools and material	160 86	
			2,900 07
Sylvan Valley and Pt. Finlay Rd....	J. Orchard, services as overseer, 36½ days at 2.25	82 12	
do	Pay lists, wages of men employed	397 50	
do	Sundry persons, tools and supplies	20 20	
			499 82
St. Joseph Isld Rds.	G. Fish, services as overseer, 7 days at 2.25	15 50	
do	Pay lists, wages of men employed	84 50	
do	J. Henry, services as overseer, 25 days at 2.25	56 25	
do	Pay lists, wages of men employed	343 75	
			500 00
Surprise Lake Rd ..	E. W. Leighton, services as overseer, 14 days at 2.25	31 50	
do	Pay lists, wages of men employed	159 00	
do	Sundry persons, tools, etc	11 37	
			201 87
S. Himsworth Rd ..	W. Bray, services as overseer, 12 days at 2.25	27 00	
do	Pay lists, wages of men employed	173 93	
do	Sundry persons, tools	3 20	
			204 13
Savage Settlem'nt Rd	Walter Savage, services as overseer, 20 days at 2.25	45 00	
do	Pay lists, wages of men employed	246 47	
do	E. W. Taplin, tools	10 30	
			301 77
Sinclair and Franklin Rd	T. Quinn, services as overseer, 20 days at 2.25	45 00	
do	Pay lists, wages of men employed	171 49	
do	Sundry persons, tools, right of way	23 06	
			239 55
Strong Tp. Rd	J. Pinkerton, services as overseer, 19 days at 2.25	42 75	
do	Pay lists, wages of men employed	243 75	
do	Sundry persons, tools, right of way, etc	16 10	
			302 60
Seguin River Bridge	B. Wickett, services as overseer, 14 days at 3.00	42 00	
do	Pay lists, wages of men employed	130 75	
do	Sundry persons, timber, iron, blacksmithing, etc	32 93	
			205 68
Stephenson and Macaulay Rd	P. Leeder, services as overseer, 14 days at 2.25	31 50	
do	Pay lists, wages of men employed	61 24	
do	Sundry persons, timber and tools	31 14	
			123 88
S. Algona Rd	J. Finucane, services as overseer, 17 days at 2.25	38 25	
do	Pay lists, wages of men employed	225 20	
do	Sundry persons, scraper and tools	16 00	
		279 45	
do	Less amount of account unpaid	39 45	
			240 00
Sebastopol Rd (S. Algona)	M. Forin, services as overseer, 16 days at 2.25	36 00	
do	Pay lists, wages of men employed	186 00	
do	Sundry persons, timber and tools	28 30	
			250 30

COLONIZATION ROADS.—*Continued.*

South Burleigh Rd .	T. G. Eastland, services as overseer, 14 days at 2.50	$ 35 00	
do	Pay lists, wages of men employed	220 01	
do	Sundry persons, plank	50 10	
			$305 11
Side Line (Nosbonsing)	P. Rochefort, services as overseer, 25 days at 2.25	56 25	
do	Pay lists, wages of men employed	326 08	
do	Sundry persons, tools	21 40	
			403 73
S. Algona Rd to Crottie's	J. Nelon, services as overseer, 18 days at 2.25.....	40 50	
do	Pay lists, wages of men employed	193 95	
do	Sundry persons, scraper and tools.....	15 60	
			250 05
Second Quarter Line (Carden)	T. Wylie, services as overseer, 15¼ days at 2.25	34 31	
do	Pay lists, wages of men employed	126 69	
			161 00
Sudbury and Chelmsford Rd	A. Lafane, services as overseer, 18 days at 2.25	40 50	
do	Pay lists, wages of men employed	240 43	
do	Sundry persons, plow, tools and postage	25 50	
			306 43
Sudbury and Neelon Rd	A. Dubreuil, services as overseer, 15 days at 2.25	33 75	
do	Pay lists, wages of men employed	230 25	
do	A. Dubreuil, tools	5 00	
		269 00	
do	Less amount of account unpaid.....	39 00	
			230 00
Shamrock and Mt. St. Patrick Rd ...	Wm. McAdam, services as overseer, 31 days at 2.25	69 75	
do	Pay lists, wages of men employed	337 24	
do	Sundry persons, cedar and tools	7 45	
			414 44
Sixth Con. Road (Algona)	C. Smith, services as overseer, 14 days at 2.25.....	31 50	
do	Pay lists, wages of men employed	145 75	
do	Sundry persons, scraper and tools	21 35	
			198 60
S. Algona 10 Con. Rd			
do	Wm. Skelly, services as overseer, 11 days at 2.25	24 75	
do	Pay lists, wages of men employed	102 00	
	Sundry persons, tools and supplies	24 35	
		151 10	
do	Less amount of account unpaid.....	11 10	
			140 00
Sherwood Rd	Alex. Stopa, services as overseer, 18 days at 2.25	40 50	
do	Pay lists, wages of men employed	189 00	
do	Sundry persons, tools.	10 05	
			239 55
Springer Rd.....	J. Jessop, services as overseer, 20 days at 2.25	45 00	
do	Pay lists, wages of men employed	255 81	
			300 81
Sturgeon River Rd .	G. Savigney, services as overseer, 14½ days at 2.25.....	32 63	
do	Pay lists, wages of men employed	195 30	
do	Sundry persons, tools, grindstone and postage.....	21 67	
			249 60
Silver Lake and Burnt River Rd ..	C. Coben, services as overseer, 8 days at 2.25	20 00	
do	Pay lists, wages of men employed and postage	391 00	
			411 00
Shepego Lake Rd...	P. Dwyer, services as overseer, 17 days at 2.25	38 25	
do	Pay lists, wages of men employed	156 25	
do	Sundry persons, plank and dynamite	7 75	
			202 25
Sparks' Creek Bridge	T. Cahill, services as overseer, 27 days at 2.25	60 75	
do	Pay lists, wages of men employed	422 00	
do	Sundry persons, cedars, iron, etc	84 50	
		567 25	
do	To be accounted for	7 75	
			575 00
Sauer Rd	Fred Riske, overseer, plow, tools, etc.....		25 82
Scott Rd	D. S. Campbell, services as overseer, 8 days at 2.25	18 00	
do	Pay lists, wages of men employed	80 93	
do	Sundry persons, cedar and postage	3 33	
			102 26
Sherwood and Hagarty Rd	A. Yantha, services as overseer, 25 days at 2.25.....	56 25	
do	Pay lists, wages of men employed	325 75	
do	Sundry persons, plow, chain, etc	28 75	
			410 75

COLONIZATION ROADS.—*Continued.*

Snider Rd	A. Grant, services as overseer, 10 days at 2.25		$ 22 50	
do	Pay lists, wages of men employed		99 00	
				$121 50
Silver Lake Rd	A. Marquart, services as overseer, 8 days at 2.25		18 00	
do	Pay lists, wages of men employed		76 60	
do	Sundry persons, tools		5 95	
				100 55
Sturgeon Falls and Springer Rd	J. Burton, services as overseer, 8 days at 2.25		18 00	
do	Pay lists, wages of men employed		82 80	
do	Sundry persons, tools and postage		9 20	
				110 00
Sturgeon Rd	F. Bidal, services as overseer, 7 days at 2.25		15 75	
do	Pay lists, wages of men employed		82 20	
do	Sundry persons, tools and postage		2 45	
				100 40
Sturgeon Falls and Springer No. 3	F. Legault, services as overseer, 8 days at 2.25		18 00	
	Pay lists, wages of men employed and postage		87 50	
				105 50
Sudbury Junction & Richards Lake Rd	O. Pilon, services as overseer, 22 days at 2.25		44 00	
do	Pay lists, wages of men employed		200 98	
do	Sundry persons, tools, etc		6 40	
				251 38
Sturgeon Falls and Nipissing Rd	V. Belanger, services as overseer, 17 days at 2.25		38 25	
do	Pay lists, wages of men employed		211 40	
do	Sundry persons, tools and postage		3 40	
				253 05
Sandy Point Rd	Wm. Irwin, services as overseer, 6 days at 2.00		12 00	
do	Pay lists, wages of men employed		141 50	
			153 50	
do	Less amount of account unpaid		13 50	
				140 00
S. Algona Rd lot 29	T. Doyle, services as overseer, 18 days at 2.25		40 50	
do	Pay lists, wages of men employed		207 88	
do	Sundry persons, tools and postage		6 60	
			254 98	
do	Less amount of account unpaid		24 98	
				230 00
Thessalon Riv. Bdge	J. D. MacLennan, balance 1901			99 25
Temiskaming Rds	J. Anderson	do		5 00
do	S. McChesney	do		25 39
do	W. K. Neill	do		10 10
do	M. J. Sheedy	do		27 39
do	W. Fisher	do		115 32
do	Jno. Grills	do		249 11
do	A. Burton	do		7 57
do	J. Newton	do		8 86
do	J. B. Thompson	do		4 50
Thessalon Bridge	N. Ansley, services as overseer, 15 days at 2.25		33 75	
do	Pay lists, wages of men employed		96 75	
do	Sundry persons, cedar, iron, nails, etc		31 60	
				162 10
Tehkummah Road	Wm. Leeson, services as overseer, 13½ days at 2.25		30 37	
do	Pay lists, wages of men employed		170 25	
				200 62
Tait and Shenstone Road	W. J. Anderson, services as overseer, 65 days at 2.50		162 50	
do	Pay lists, wages of men employed		1,155 03	
do	Sundry persons, tent, stove, tools and material		101 74	
do	do provisions and supplies		405 48	
			1,824 75	
	Less amount of account unpaid		29 75	
				1,795 00
Tallon and Bellrock Road	E. Tallon, services as overseer, 11 days at 2.25		24 75	
do	Pay lists, wages of men employed		99 50	
do	Sundry persons, tools		2 66	
				126 91
Trout Lake Road	G. Rancier, services as overseer, 13 days at 2.25		29 25	
do	Pay lists, wages of men employed		210 25	
do	Purvis Bros., tools		14 85	
				254 35

COLONIZATION ROADS.—*Continued.*

Temiskaming District Roads:			
Armstrong Tp.			
Boundary Road...	J. Field, services as overseer, 112 days at 2.50	$280 00	
do	Pay lists, wages of men employed	1,619 87	
do	J. T. Newton, groceries and provisions	194 98	
do	Sundry persons, do do	227 45	
do	do camp outfit, tools and material	107 02	
		2,429 32	
	Less board overs'r not allowed, 41.50 less acct unpaid 87.82..	129 32	
Armstrong Road			$2,300 00
Lot 6 and 7.....	F. Atkinson, services as overseer, 129 days at 2.00	258 00	
do	Pay lists, wages of men employed	2,531 77	
do	E. Eplett, camp outfit, stove, tools, etc	106 75	
do	Sundry persons, hay, oats and feed	94 74	
do	Taylor Bros., scraper, plow and material	78 63	
do	J. Wilson, provisions and groceries	210 14	
do	J. R. Phillips, do do	182 97	
do	Robinson & Galoski do	165 70	
do	N. Grills, do do	110 97	
do	Sundry persons, provisions, blacksmithing and supplies...	264 99	
		4,004 66	
	Less amount of account unpaid	103 16	
Buck Con. 5 S. L.			3,901 50
Road ...	S. Reid, services as overseer, 5½ days at 2.25	12 37	
do	Pay lists, wages of men employed	62 70	
Buck Con. 3 and 4			75 07
Road	P. T. Lawlor, services as overseer, 32½ days at 2.25	72 56	
do	Pay lists, wages of men employed	548 19	
do	Sundry persons, provisions, tools, material and postage....	75 25	
			696 00
Brethour Road.	Jno. Wilder, services as overseer, 28½ days at 2.25.. ...	64 12	
do	Pay lists, wages of men employed	444 57	
do	G. Cook, blacksmithing	1 95	
Beauchamp and			510 64
Robillard Road...	Jno. Armstong, paymaster—		
do	Pay lists, wages of men employed		86 00
Buck Con. 4.... ...	Jno. Sharpe, services as overseer, 24 days at 2.25	54 00	
do	Pay lists, wages of men employed	424 81	
do	Sundry persons, tools and material	25 60	
do	Pay lists, wages of men employed (Haileybury section)...	201 00	
Buck Tp. Road			705 41
Lot 11	F. A. Geroux, services as overseer, 24½ days at 2.25	54 45	
do	Pay list, wages of men employed and postage	245 63	
			300 08
Con. 2 and 3 Harley.	John T. Pringle, services as overseer, 23¼ days at 2 25....	52 30	
do	Pay lists, wages of men employed and postage	447 70	
			500 00
Con. 1 and 2 Kearns	Robt. Daly, services as overseer, 32 days at 2.25	94 50	
do	Pay lists, wages of men employed	664 05	
			758 55
Casey 3 and 4 Road.	P. W. Bolger, services as overseer, 17¾ days at 2.25	39 94	
do	Pay lists, wages of men employed and postage..	115 79	
Dymond and Harley			155 73
Road.....	A. D. Hermeston, services as overseer, 37 days at 2.25 ...	83 25	
do	Pay lists, wages of men employed	449 23	
do	Sundry persons, block and tackle and postage	1 00	
		533 48	
	Less ded't'd ov'r's time 4.50, less amt. of acct. unp'd 28.98	33 48	
Dymond and			500 00
Haileybury.....	Neil McFayden, services as overseer, 68 days at 2.25.	153 00	
do	Pay lists, wages of men employed	1,330 28	
do	E. Monoghan, scraper	13 00	
Dymond 1 and 2			1,496 28
Road.....	S. Scrimshaw, services as overseer, 22 days at 2.25	49 50	
do	Pay lists, wages of men employed	255 30	
do	E. D. Eplett, chain	4 46	
			309 26
Grading Machinery.	Sawyer Massey, grading machine	224 00	
do	Taylor Bros., 2 two wheeled scrapers	118 00	
do	Sawyer Massey, repairs to scraper	9 75	
Haileybury and			351 75
Sharpe Road	S. Bredin, services as overseer, 13¼ days at 2.25	29 80	
do	Pay lists, wages of men employed	77 37	
			107 17

COLONIZATION ROADS.—*Continued.*

Hudson Con. 5 and 6 Road	F. Clark, paymaster			$268 04
do	Pay lists, wages of men employed		$65 58	
Harley & Kearns Rd	C. Wilson, services as overseer, 29 days, 1½ hours at 2.25		235 68	
do	Pay lists, wages of men employed			301 26
Harley, con. 3 & 4	E. Craig, services as overseer, 29 days at 2.25		65 25	
do Rd	Pay lists, wages of men employed		374 92	
do	Sundry persons, provisions and supplies		146 86	
			587 03	
do	Less overseer's board		13 50	
				573 53
Harris and Dymond	Thos. Waugh, services as overseer, 18 days at 2.25		40 50	
do Rd.	Pay lists, wages of men employed		249 88	
do	Sundry persons, scraper, plank, etc		12 53	
				302 91
Hilliard&Harley Rd	S. S. Ritchie, services as overseer, 125 days at 2.25		281 25	
do	Pay lists, wages of men employed		3,346 07	
do	A. Ross, hay and oats		403 95	
do	Taylor Bros, camp supplies, oats, etc		328 61	
do	British and Can. Lead Co, dynamite, etc		113 50	
do	J. Wilson, groceries and provisions		164 53	
do	F. Humphrey, do		145 86	
do	N. Grills, do		130 49	
do	S. Eplett, tools, etc		57 57	
do	S. S. Ritchie, Jr., hay		185 11	
do	Sundry persons, lumber, blacksmithing, powder & cartage		154 71	
do	Lumsden Steamboat Co: Freight		128 62	
do	Sundry persons, provisions, hay and oats		376 70	
				5,816 97
Harris, Con. 3 and 4	C. W. Tucker, services as overseer, 27 days at 2.25		62 55	
do	Pay lists, wages of men employed		513 37	
do	Sundry persons, postage and repairs to scraper		1 18	
				577 10
Harley & Hilliard Rd	Alf. Burton, services as overseer, 85½ days at 2.50		192 38	
do	Pay lists, wages of men employed		1,646 72	
do	J. Wilson, groceries and provisions		606 53	
do	Taylor Bros., oats and supplies		238 94	
do	A. Case, powder and dynamite		115 75	
do	Sundry persons, lumber, dynamite, hay and oats, etc		155 54	
do	do provisions, supplies and postage		64 73	
			3,020 59	
do	Less amount of account unpaid		170 59	
				2,850 00
Hudson Rd	J. Richardson, services as overseer, 35 days at 2.25		78 75	
do	Pay lists, wages of men employed		486 10	
do	Sundry persons, provisions and supplies		105 05	
			669 90	
do	Less overseer's board		17 50	
				652 40
Hudson, 3 and 4	W. K. Neill, services as overseer, 104 days at 2.50		260 00	
Rd	Pay lists, wages of men employed		1,760 67	
do	T. J. Newton, supplies		33 20	
do	J. Wilson, provisions, supplies and postage		279 54	
			2,333 41	
do	Less supplies sold, 26.55 ; less F. Atkinson acct. 52.10		78 65	
			2,254 76	
do	To be accounted for		25 24	
				2,280 00
Haileybury and Liskeard Rd.	G. M. Sharp, services as overseer, 13 days at 2.25		29 25	
do	Pay lists, wages of men employed		390 27	
do	Sundry persons, tools		5 48	
				425 00
Harley and White River Rd	D. Littlejohn, services as overseer, 47½ days at 2.25		106 30	
do	Pay lists, wages of men employed		401 60	
do	Sundry persons, spikes and postage		2 50	
				510 40
Harris and Casey Rd	J. Bucknell, services as overseer, 22 days at 2.25		49 50	
do	Pay lists, wages of men employed		247 24	
				296 74
Kearns, 1 and 2, Rd	H. Palmer, services as overseer, 25 days, 1 hour, at 2.25		56 48	
do	Pay lists, wages of men employed		451 63	
				508 11

COLONIZATION ROADS.—*Continued.*

Liskeard and Haileybury Rd.	H. Pelletier, services as overseer, 25 days at 2.25	$56 25		
do	Pay lists, wages of men employed	424 14		
do	Sundry persons, plow and tools	19 61		
				$500 00
North Rd, Liskeard	R. Emerson, services as overseer, 47 days at 2.50	117 50		
do	Pay lists, wages of men employed	1,267 65		
do	Sundry persons, plow and tools	21 76		
				1,406 91
Preliminary Survey	Stephen Ryan, services, 78 days at 5.00	390 00		
do	do travelling expenses	215 35		
do	do provisions, blankets, tents, etc	76 31		
do	M. Devine, services as assistant, 52 days at 2.50	130 00		
		811 66		
do	Less canoe sold, 12.00, less amt. of acct. unpaid 30.86	42 86		
				$768 80
Taylor and Wabis C'k Rd.	S. S. Alexander, services as overseer, 24½ days at 2.25	32 62		
do	Pay lists, wages of men employed	190 78		
do	Sundry persons, blacksmithing, etc.	3 55		
				226 95
Wright's Creek Rd.	M. J. Sheedy, services as overseer, 50 days at 2.25	112 50		
do	Pay lists, wages of men employed	590 57		
				703 07
Wabis Creek Rd.	L. Scott, services as overseer, 23 days, at 2.25	51 75		
do	Pay lists, wages of men employed	253 94		
do	Sundry persons, tools	8 50		
				314 19
West Rd, Con. 8.	Jno. McCracken, paymaster.			
do	Pay lists, wages of men employed			165 03
West Dymond Rd.	Jno. Grills, services as overseer, 85 days at 2.25	191 25		
do	Pay lists, wages of men employed	1,142 27		
do	Sundry persons, provisions and supplies	75 00		
		1,408 52		
do	Less amount of account unpaid	258 52		
				1,150 00
West 2 and 3 Road.	Jno. Newton, services as overseer, 58 days, at 2.50	145 00		
do	Pay lists, wages of men employed	1,473 67		
do	Sundry persons, tools, iron bolts and supplies	54 03		
				1,672 70
Wright's Road	Wm. Judge, services as overseer, 15 days at 2.25	33 75		
do	Pay lists, wages of men employed	217 88		
				251 63
West Road, Con. 3 and 4	C. McNaughton, services as overseer, 55½ days at 2.00	110 50		
do	Pay lists, wages of men employed	1,613 01		
do	T. Newton, groceries and provisions	182 69		
do	Sundry persons, provisions, etc	88 22		
do	do tents, tools, etc	78 75		
		2,073 17		
	Less sale of stove and furnishings	34 00		
				2,039 17
West Road (Kearns and Armstrong)	Wm. Fisher, services as overseer, 116 days at 2.50	290 00		
do	Pay lists, wages of men employed	2,660 44		
do	J. Wilson, groceries and provisons	322 84		
do	N. Grills, do	167 77		
do	Sundry persons, stove, tools, etc	90 98		
do	do lumber	116 47		
		3,648 50		
do	Less sales of supplies	26 48		
				3,622 02
Western Road (Evanturel)	T. S. Taylor, services as overseer, 125 days at 2.00	250 00		
do	Pay lists, wages of men employed	4,547 46		
do	Jno. Clark, provisions and camp outfit	1,010 28		
do	do board of men	121 95		
do	Taylor Bros., hay, oats and supplies	307 46		
do	J. Scott, hay	85 81		
do	Ontario Powder Co., dynamite and powder	135 00		
do	R. B. Herron, hay, blankets and transportation	140 30		
do	Sundry persons, oats	112 31		
do	do provisions, supplies, tools and material	297 51		
do	E. Monoghan, plows, scraper and wagon	122 00		
		7,130 08		
do	Less amount of account unpaid	1,523 35		
				5,606 73

COLONIZATION ROADS.—*Continued.*

Union Creek Bridge.	C. McMahon, services as overseer, 19 days at 2.25	$ 42 75	
do	Pay lists, wages of men employed	108 75	
do	Sundry persons, timber, spikes and material	85 16	
			$236 66
Vankoughnet Rd...	S. H. Simmons, services as overseer, 50 days, at 2.50	125 00	
do	Pay lists, wages of men employed	730 92	
do	Sundry persons, teaming, camp outfit, tools and material.	73 08	
		929 00	
do	To be accounted for	21 00	
			950 00
Verner and Badgerow Road	W. Leduc, services as overseer, 19½ days at 2.25	43 31	
do	Pay lists, wages of men employed	236 28	
do	Sundry persons, tools, material and postage	18 91	
			298 50
Veuve River Bridge.	J. Ostertag, services as overseer, 11 days at 2.25	24 75	
do	Pay lists, wages of men employed	51 14	
do	Sundry persons, timber, spikes and material	34 88	
			110 77
Vansickle Road	J. Vansickle, services as overseer, 7 days at 2.25	15 75	
do	Pay lists, wages of men employed	83 13	
do	J. Vansickle, dynamite and postage	1 12	
			100 00
Verner Road	J. Cote, services as overseer, 13½ days at 2.25	30 37	
do	Pay lists, wages of men employed	161 73	
do	Sundry persons, tools	8 75	
			200 85
Wahnapitae Road	R. M. Eastwood, balance 1901		50 09
Wilberforce Road	P. Mick, do 1898		9 41
Wabigoon and Elm Bay Road	Jno. Stewart, services as overseer, 19 days at 2.25	42 75	
do	Mrs. Stewart, board of men	66 08	
do	Pay lists, wages of men employed	184 58	
			293 41
Wabigoon and Dinorwic Road	Neil McDougall, paymaster.		
do	Pay lists, wages of men employed	397 65	
do	Sundry persons, provisions and supplies, R.R. fares, etc.	134 00	
		531 65	
do	Less excess charge of foreman	25 50	
			506 15
Whitefish Bridge...	Neil McDougall, paymaster.		
do	Pay lists, wages of men employed	144 00	
do	Sundry persons, provisions, bolts and material	58 06	
			202 06
Wainwright Rd	A. Kennedy, services as overseer 22 days at 2.25	49 50	
do	Pay lists, wages of men employed	443 80	
do	S. B. Black, dynamite, etc	7 70	
		501 00	
do	Less amount of account unpaid	21 00	
			480 00
Whitefish & Sudbury Road	D. Rivers, services as overseer, 28 days at 2.25	63 00	
do	Pay lists, wages of men employed	425 89	
	Sundry persons, tools	9 66	
			498 55
Worthington and Blue Road	J. A. Tierney, paymaster.		
do	Pay lists, wages of men employed	731 92	
do	Sundry persons, crossway timber, tents, tools, provisions, etc.	407 76	
			1,139 68
Winnipeg River Rd.	G. Alcock, services as overseer, 27½ days, at 2.50	68 75	
do	Pay lists, wages of men employed	335 53	
			404 28
Worthington and Victoria Road	J. Dwyer, services as overseer 22 days at 2.25	49 50	
do	Pay lists, wages of men employed	246 73	
do	Sundry persons, tools	4 70	
			300 93
Wells' Road	Wm. Yates, services as overseer 26 days at 2.25	58 50	
do	Pay lists, wages of men employed	243 00	
do	Sundry persons, tools, dynamite, etc	15 00	
			316 50
Winter trails	C. J. Holland, brushing trails		20 00
Westphalia Road...	T. F. Carr, services as overseer 22 days at 2.25	49 50	
do	Pay lists, wages of men employed and postage	244 59	
do	Sexsmith & Co., tools	6 83	
			300 92

COLONIZATION ROADS.—*Continued.*

Westphalia Road (Trout Creek)	J. McGuiness, services as overseer 34 days at 2.25	$ 76 50		
do	Pay lists, wages of men employed	319 35		
do	Sundry persons, tools	2 85		
				$398 70
Watt and Cardwell Road	A. Grenke, services as overseer 27 days at 2.25	54 00		
do	Pay lists, wages of men employed	237 46		
do	G. Rutherford, tools	20 30		
		311 76		
do	Less sale of tools	12 35		
				299 41
Whitestone Road	R. McGhie, services as overseer 30 days at 2.25	67 50		
do	Pay lists, wages of men employed	319 50		
do	Sundry persons, tools, etc	12 96		
				399 96
Widdifield Road (North)	John Ellis, services as overseer 11 days at 2.25	24 75		
do	Pay lists, wages of men employed	119 25		
do	Richardson & Co., shovels, etc	6 60		
				150 60
Widdifield Road Con. A	M. J. Kennedy, services as overseer 7 days at 2.25	15 75		
do	Pay lists, wages of men employed	53 25		
do	Sundry persons, tools	6 00		
				75 00
Wiawasa Road	W. Ledgerwood, services as overseer 18½ days at 2.25	41 62		
do	Pay lists, wages of men employed	217 78		
				259 40
Widdifield Bridge	J. Bailey, services as overseer 7 days at 2.25	15 75		
do	Pay lists, wages of men employed	87 75		
				103 50
Warren Road	M. King, services as overseer 11 days at 2.25	24 75		
do	Pay lists, wages of men employed	75 25		
				100 00
Wilno Rd	F. Kuach, services as overseer 20 days at 2.25	45 00		
do	Pay lists, wages of men employed	240 00		
do	Sundry persons, plow and tools	29 65		
		314 65		
do	Less sale of tools	13 75		
				300 90
Widdifield Tp. Rds.	J. Overholt, services as overseer 11 days at 2.25	24 75		
do	Pay lists, wages of men employed	118 90		
do	Sundry persons, tools	6 00		
				149 65
Widdifield Rd. Con. A	T. Robinson, services as overseer 5½ days at 2.25	12 37		
do	Pay lists, wages of men employed	37 72		
				50 09
Westport and Maberly Rd	T. O'Connor, services as overseer 17 days at 2.25	38 25		
do	Pay lists, wages of men employed	202 00		
do	Sundry persons, tools, cedar and cartage	9 75		
				250 00
Widdifield Rd Con. B	L. Curson, services as overseer 12½ days at 2.25	28 13		
do	Pay lists, wages of men employed	114 00		
do	Sundry persons, lumber and tools	9 30		
				151 43
Wilberforce 6 line Road	A. Kruger, services as overseer 13 days at 2.25	29 25		
do	Pay lists, wages of men employed	184 50		
do	Sundry persons, plow and tools	24 20		
				237 95
Wilberforce 16 and 18 Con Rd	D. Colmire, services as overseer 20 days at 2.25	45 00		
do	Pay lists, wages of men employed	214 25		
do	Sundry persons, plow, scraper and tools	41 75		
				301 00
Westmeath Rd	J. Collins, services as overseer 18 days at 2.25	40 50		
do	Pay lists, wages of men employed	462 00		
		502 50		
do	Less municipal grant	100 00		
				402 50
Wilberforce Con. 3 Road	M. Delonghery, services as overseer 20 days at 2.25	45 00		
do	Pay lists, wages of men employed	98 20		
do	Sundry persons, cedar and board of men	62 50		
				205

COLONIZATION ROADS.—*Concluded.*

Wylie Tp. Con. 8 and 9 Rd	J. Law, services as overseer 20 days at 2.25		$ 45 00	
do	Pay lists, wages of men employed		249 75	
do	F. E. Dumonhel, tools		8 25	
			303 00	
do	Less sale of tools		2 40	
Wylie Rd. Con. 13 and 14	W. McKee, services as overseer 24 days at 2.25		54 00	$300 60
do	Pay lists, wages of men employed		233 59	
do	Sundry persons, cedar and tools		13 75	
Westplain and Hungerford Rd	J. W. Hall, services as overseer 12 days at 2.25		27 00	301 34
do	Pay lists, wages of men employed		176 20	
do	Sundry persons, tools		11 68	
			214 88	
do	Less sale of tools		4 00	
				210 88
York River Bridge	D. Kavanagh, balance 1901			20 00
Zealand Rd	F. W. Fisher, services as overseer 23 days at 2.25		51 75	
do	Pay lists, wages of men employed		331 71	
do	Sundry persons, board of men 115.52, and use of plow 2.00		117 52	
				500 98
				196,824 34
Less refunds :—				
On account expenditure—				
Dummer, 9th Con. Rd. 1901			480 00	
Jackfish Bay and Long Lake, 1899			10 93	
Harrow Township Rd., 1901			2 93	
Marmora Station Rd., 1901			54 41	
Mining trails, 1900			30 00	578 27
Total Colonization Roads				$196,246 07

CHARGES ON CROWN LANDS.

BOARD OF SURVEYORS ($200.00).

Secretary-Treasurer Board of Land Surveyors of Ontario; To pay examiners	$200 00

AGENTS' SALARIES AND DISBURSEMENTS ($26,197.89).

Salary as Agent :—

P. C. Campbell, 1,600.00;	J. B. McWilliams, 2,500.00;	C. L. Russell, 372.00;	
Wm. Margach, 1,600 00;	H. Munro, 1,200 00;	J. F Ruttan, 250.00;	
Ed. Garrow, 1,400.00;	F. K. Halliday, 1,600.00;	Wm. Russell, 266.00;	
Jno. Kennedy, 1,334.00;	Chas. Henderson, 1,300.00;	A. E. Annis, 200.00;	
Jno. Armstrong, 500.00;	S. G. Best, 500.00;	D. M. Brodie, 151.10;	
Thos Buchanan, 300.00;	E. A. Chapman, 66.66;	W. Campbell, 300 00;	
J. D. Cockburn, 500.00;	T. G. Eastland, 300.00;	Jas. Ellis, 500 00;	
Geo. Hamilton, 83.33;	E. Handy, 500.00;	Wm. Hartle, 350.00;	
C. J. Holland, 300.00;	Alex. Hamilton, 100.00;	Wm. Kirk, 500 00;	
T. J. Ryan, 500 00;	J. S. Scarlett, 500.00;	Wm. Stephenson, 300.00;	
C. R. Stewart, 500 00;	Jas. Stewart, 300 00;	J R. Tait, 300 00;	
Jno. Whelan, 300.00;	A. W. Wood, 100.00;	H. N. Young, 300.00;	21,673 09

Disbursements as Agent :—

E. Handy, 16.16; F. J. Ryan, 19.20; T. G. Eastland, 14.21; D. M. Brodie, 2.62;
C R. Stewart, 6.95; J. Whelan, 11.48; W. Kirk, 6.53;
A. E. Annis, 26.73; C. L. Russell, 21.35; James Stewart, 5.00; W. Campbell, 7.40;
J. Armstrong, 101.17; J. F. Ruttan, 12.00; W. Stephenson, 33.56; H. Munro, 15.75;
W. Hartle, 9.29; J. D. Cockburn, 5.14; A. W. Wood, 1.48; James Ellis, 12.82;
E. Garrow, 157.58; F. S. Forbes, .90c 487 32

Services as Caretaker :—

S. Davis; Leonard Island, 20.00; D. Ames; Islands, Dog and Loboro Lakes, 20.00;
G. Bilton; Islands, Mud and Loon Lakes, 1901, 25.00 ..... 65 00

CHARGES ON CROWN LANDS.—*Continued.*

AGENTS' SALARIES AND DISBURSEMENTS.—*Continued.*

Sault Ste. Marie Agency:—
P. C. Campbell: Expenses and disbursements, 177.52.....
To pay :—McFadden & McFadden: Rent, 153.00: Joseph Ganley: Rent, 117 00:
Jas. Bolt. Estimating lots, 108.00. Connors & Everett: Estimating lots, 7.00:
F. H. Hughes: Measuring timber, 27.00: Bassingthwaite & Co: Furniture, 9.15:
H. Bowden: Typewriting, 28.37: R. Hunter: Typewriting, 1 00:
C. F. Adams & Co: Stationery, 3.20: Postmaster: Postage stamps, 18.50:
C. P. R. Tel. Co: Telegrams, 12.67: Dom. Express Co: Charges, 1.70:
Livery hire: A. Templeton, 44.00: W. Nicholson, 3.00: J. McDonald, 6 25:
J. H. Sandie, 2.00..... $719 36
Less charged in 1901..... 300 00
419 36

Parry Sound Agency :—
F. Halliday: Travelling expenses and disbursements, 177.71.....
do To pay :—Postmaster: Postage stamps and rent of box, 17.00.....
Hunter Rose & Co: Stationery, 3.05..... 197 76

Rat Portage Agency :—
W. Margach: Travelling expenses and disbursements, 606.55: accountable, 200.00:
do To pay :—R. Everett: Livery, 12.00: Delbridge & Co: Livery & feed, 75.00:
J. Rhodes: Livery and feed, 4.00: John Moore: Inspecting lots, 4.00:
J. K. Park: Exploring, 5 00: office rent, to Oct. 1st, 80.00:
Sundry persons: Teaming and freight charges, 46.71.....
W. Campbell: Exploring at 4 00 per day, 46.75.....
J. A. Margach: Estimating timber at 4.00 per day, 292.00: travelling exp. etc, 123.57:
Sundry persons: Wages, assisting, etc, 360.75: Delbridge Bros: Team horses, 80.00:
Clerical work in office: A. McFarlane, 19.00 N. M. Aylward, 101.00:
W. F. Kennedy. Board of men, 8.40. W. Margach: Board of men, 109.40:
W. Margach: Feed for horses, 45.15: sundry persons: Printing and stationery, 26.65:
Postmaster: Rent of box and postage stamps, 36.00.....
G. W. Smith: Stationery, 5.50: Geo. Halock: Wood, 19.00..... 2,306 43
Less charged in 1901..... 100 00
2,206 43

Pembroke Office :—
W. Russell: Travelling expenses and disbursements, 91.20.....
do Allowance for rent and fuel, 35.00.....
do To pay :—S. E. Mitchell: Stat'y, 6.15: Print Shop: Ptg and stat'y, 2.25:
Postmaster: Rent of box and postage stamps, 18.00.....
C. P. R. Telegraph Co: Telegrams, 4.77: G. N. W. Telegraph Co: Telegrams, 1.21:
Dom. Express Co: Charges, 2.40..... 160 98

Peterboro Office :—
J. B. McWilliams: Travelling expenses and disbursements, 344.05: accountable, 100 00:
Peterboro Light & Power Co: Light, 10 00: Tor. Sav's & Loan Co: Rent of office, 175.00:
R. A. W. Hay: Typewriting, 13.08 Postmaster: Rent of box, 2 00:
L. Mowry: Postage stamps 21.00: *Times* Printing Co: Printing and stationery, 10.05:
A. Stratton & Co: Printing and stat'y, 42.65: Office Specialty Co: Office furniture, 24.50:
Bell Telephone Co: Messages, 7.45: G. N. W. Telegraph Co: Telegrams, .84c:
C. P. R. Telegraph Co: Telegrams, 2.03..... 752 65

C. R. Stewart: Expenses inspecting lots in Monmouth..... 5 85
W. Campbell: do do Tait, Dilke and Shenstone..... 14 00
Marshall & McLeod Supplies *re* examination lots, Twp. of Hodgins..... 12 19
Templeton & Sons: Teaming supplies, do do..... 8 00
L. Wright: Packing and assisting, do do..... 10 00
S. Biron: do do do..... 10 00
J. Maughan: Fares and cartage, do do..... 6 50
H. J. Spence: Valuating unsurveyed property in Southampton..... 3 00
H. H. Miller: Report on lot 3, con. 11, Glenelg..... 8 00
J. H. Willmott: Inspecting lot in Medora..... 10 50
R. H. Arthur: Fumigating camp books, Sudbury..... 18 00
C. Henderson: Travelling expenses, inspecting lots, Twp. Brunel..... 4 85
W. Stephenson: Valuating lot Twp. Dobie..... 3 00

Inspection Township Aweres :—
Marshall & McLeod: Supls, 14.10 ; L. Everett: cook, 16.00 ; A. Rutherford : cook, 6.00 ;
Nellie Scott: typewriting, 75c. ; Brooks Transfer Line: cartage, 1.25 ;
L. Everett travelling expenses, 1.20..... 39 30
J. Regan: Inspecting lots Twp. Baxter, 15.00 ; travelling expenses, 4.70..... 19 70

Exploration Twp. Hutton :—
C. Henderson: Expenses, 6.09; J. Sproat: Assistant, 32.00; W. Munro: teaming, 10.00 ;
Sinclair Bros: Supplies. 14.41..... 62 41

FOREST RANGING AND INSPECTION OF TIMBER LIMITS. ($31,962.48).

Services as Ranger at 5.00 per day :—
C. Henderson, 210.00 ; J. C. Kennedy, 625.00 ; W. P. Malone, 635.00 ;
Thos. Mooney, 425.00 ; accountable, 100 00 ; J. J. Pearson, 450.00 ; accountable, 100.00 ;
C. L. Bremner, 655.00 ; accountable, 100.00 ; W. Robinson, 1,210.00 ; accountable, 100.00 ;

CHARGES ON CROWN LANDS.—*Continued.*

FOREST RANGING AND INSPECTION OF TIMBER LIMITS.—*Continued.*

W. P. Christie, 800.00; accountable, 100.00; John Brady, 770.00; accountable, 100.00;
J. B. White, 1,405 00; T. G. Wigg, 900.00; accountable, 100.00;
J. McCracken, 775.00; accountable, 100.00; W. McGowan, 990.00; accountable, 100 00;
Jas. Halliday, 810.00; P. McCogherty, 1,045 00; accountable, 100.00;
Jno. Regan, 1,110.00; accountable, 100.00; W. Quinn, 1,125.00;
E. B. Lloyd, 809.00; accountable, 100 00; S. M. Johnson, 1,465.00;
D. H. Moore, 1,650.00; D. F. Macdonald, 470.00 ..... $19,534 00

Services as Ranger at 4.00 per day :—
J. Maughan, 1,252.00; S. Johnston, 304.00; accountable, 100.00; C. Lewis, 152.00;
A. McGillivray, 404.00; T. G. Taylor, 680.00; accountable, 175.00 ..... 3,067 00

Services as Ranger at 3.50 per day :—
F. Sinclair, 1,046.50; A. C. Crawford, 813.50; N. J. Devine, 421.50;
J. McConachie, 269.50; accountable, 50.00; C. T. Young, 390.00; accountable, 100.00;
J. M. Campbell, 418 00; accountable, 100.00; H. Jervis, 638.50; accountable, 100.00;
G. E Elliott, 736.50; H. Lewis, 49.00 ..... 5,133 00

A. E. Cross, services as Ranger at 3.00 per day 135 00

C. Henderson: Inspecting islands, 80.00; travelling expenses, etc., 26.50 ..... 106 50

Sundry persons: assisting, examining Twps. in Temiskaming for J. Armstrong 199 64

Jas. Bolt: examining lots re timber St. Joseph Island, 68.00; travelling expenses, 3.19 .... 71 19

Jas. Watson: estimating timber, 30.00; Jno. McFarland, accountable, 50.00 ..... 80 00

Travelling expenses, etc.:—
A. C. Crawford, 19.75; S. Johnson, 22.20; J. J. Pearson, 19.00; C. Lewis, 29.05;
J. McConachie, 15.95; C. T. Young, 15 00; N. J. Devine, 20.50; W. P. Malone, 50.55;
C. L. Bremner, 19.95; J. M. Campbell, 38.25; A. McGillivray, 142.45;
W. P. Christie, 19.90; Jno. Brady, 2.94; Jas. Halliday, 8.20; H. Jervis, 10.50;
T. G. Taylor, 76.68; G. E. Elliott, 27.50; John Regan, 56.78; D. H. Moore, 129.10;
H. Lewis, 9.65; P. McCogherty, 53.40 ..... 787 30

Jos. Maughan, to pay :—
G. Campbell, meals, etc., 6.00; J. Gaudette, meals, 11.50; J. Bishop, assistant, 12.50;
O. D. Brooks, cartage, 2.00; Marshall & McLeod, supl's, 6.75; M. Miller, suppl's, 4.28;
S. Biron, assistant at 2.00 per day, 32.00; travelling expenses, 72.00 ..... 147 03

J. C. Kennedy, to pay :—
Travelling expenses. 42.30; postage, 2 84; A. Laroux, ass'nt, 3.00; J. Ebert, ass'nt, 15.00;
A. Pino, assistant, 9 00 ..... 72 14

W. Robinson, to pay :—
Yos (Indian) canoe, 10.00: Mrs. C. McKee, rent of office, 12.50; stat'y & postage, 2.00;
travelling expenses, 77.36; Booth & Shannon, supplies, 22.53; C. McKee, canoe, 10.00;
Hudson's Bay Co., canoe, 9.00; A. P. Pomoiweting, canoe, 6.00; G. Tossie. asst., 18.00;
A. Langlois, assistant, 18.00; D. Carifee, assistant, 154.00 ..... 339 39

F. Sinclair, to pay :—
Geo. Elliott, supplies, 9.67; R. Holding, assistant, 11.00; Indian canoeman, 10.50;
D. Campfit, canoeman, 6.00; Dominion Express Co., charges, 4.00; trav. expenses, 4.20.. 45 37

J. B. White, to pay :—
C. V. Campbell, assistant at 3.00 per day, 114.00; travelling expenses. 40.05..... 154 05

S. M. Johnson, to pay :—
Dominion Express Co, charges, 2.20; J. T. Wait, postage stamps, 20.00;
J. R. Hodgins & Co., postage stamps, 75c; E. C. Armand, wood, 3 50;
A. T. Budd, stationery, 2.75; Postmaster, rent of box, 2 00; Bell Tel. Co.. mess'gs. 90c;
travelling expenses, 76.35 ..... 108 45

C. Henderson, to pay :—
F. Cochrane, assistant, 4.45; G. H. Lennon, supplies, 11.87; O. Tower. teaming, 7.00;
travelling expenses, 45.40 ..... 68 72

J. McCracken, to pay :—
Travelling expenses, 35.52; stationery and postage, 5.00; T. Pipe, assistant, 24.00. 64 52

W. McGowan, to pay :—
Travelling expenses, 41.45; L. Neddo, assistant, 8.00; travelling expenses, 2.00..... 51 45

T. G. Wigg, to pay :—
Campbell & Co., teaming and feed, 16.10; J. Goneau, assistant, 16.00;
T. W. Thompson, supplies, 6.34; M. A. Cummings, supplies, 65c.; trav. expenses, 33.00 72 09

J. Armstrong, to pay :—
A. B. Wetherup, supplies, 10.10; Abraham Bros., supplies, 19.26;
Taylor Bros., supplies, 1.45; J. F. Gillies, horse hire, 5 00;
E. Monahan, horse hire, 3.50; J. Clark, board, 2.75; J. Lamure, assistant, 16.00;
J. McChesney, assistant, 20.25; Lumsden Steamboat Line, fares and freight, 13.20 .... 91 51

A. E. Cross, to pay :
Board of self and men, 43.50; trav. expenses, 39.00; W. C. Commins, assistant, 84.00.. 166 50

Hugh Munro, to pay Can. Northern Railway Co., freight charges on canoe 3 78

E. B. Lloyd, to pay :—
Travelling expenses, 76.95; rations, 44.80; E. Monahan, tent, 6.00;
T. Gregory, guide, 12.00..... 139 75

D. F. Macdonald, to pay :—
A. Longevin, guide, etc., 120.00; G. N. W. Telegraph Co., telegrams, 1.05;
Travelling expenses and disbursements, 47.05..... 168 10

Services checking returns at 2.00 per day :—
W. Carrell, 602.00; W. F. Trivett, 554.00 ..... 1,156 00

CHARGES ON CROWN LANDS.—*Continued.*

FOREST RESERVE ($5,989.24).

A. W. Wood: Twelve months' salary as Guardian..... $250 00
H. Munro: do Ranger..... 100 00
L. Loughrin: Services as Chief Fire Ranger, 474.00; trav. exp. and disbursements, 42 25; to pay—Jno. Tigie: Canoe, 25.00; J. B. Matthias: canoe, 10.00..... 551 25
H. S. Southworth: Services as Chief Fire Ranger, at 2 50 per day, 120.00; ranger, at 2.00 per day, 204.00; allowance for board, at 50 per day, 75.00; trav. exp and disburs'ts, 49.94; to pay—Jno. Turner: clearing land, Bear Island, 25.00..... 469 94
F. H. Wensley: Services as Fire Ranger, at 2.00 per day..... 212 00
G. O'Leary: do 2 50 do 267.50; trav. expenses, 19.95..... 287 45
H. W. Evans: do do 267.50; do 15.85..... 283 35
P. McGregor: do do 422 50; do 12.10..... 434 60
Fire Rangers at 2.00 per day:—W. Petrant, 276.00; Jas Friday, 283.84; Jos Turner, 292.00; Jno. McLean, 278.00; Jno. Petrant, 118 00; A Paul, 234 00; Antoine Katt, 220.00; F. Whitebear, 280 86; Michael Katt, 4.00; Jno. Tigie, 5.00; Jno. Turner, 278.00; allowance for board, 69.50; to pay for scales, 6 00; hardware, 3 90; rent of boat, 7.00; Isaac Dent: 327 00; allowance for board, 81.00; trav. expenses, 30 50; P. Young: 324 00; do 81 00; do 23.55..... 3,223 15
W. E. Glaspell: Canoe and paddles..... 6 00
Hudson's Bay Co: Canoe, 10 00; hardware, glass, etc, 11.76..... 21 76
T. Eaton Coy: Blankets, tents and crockery, 40 16; W. Petrant: use of tools, 7 10..... 47 26
H. G. Wood: Rent of stove, 5.00; Geo. Lugsdin & Co: pack straps, etc, 9.00..... 14 00
Hardware: A. Maas, 30.75; Aikenhead Hardware, 27.50..... 58 25
Supplies: J. A. & N. Fink, 6.60; J. Loughrin, 10.70; E. B. Eddy Co, 4.50..... 21 80
L. K. Cameron: Stationery..... 8 43

FIRE RANGING ($34,097.31).

Services as Rangers at 3.00 per day:—W. P. Christie, 300 00: trav. expenses, 60.60: A. J. O'Neill, 372.00: trav. expenses, 4.40: Jno. Gardiner, 278.00: trav. exp, 18.00: to pay:—Purvis Bros: Paints, etc, 1.75..... O. E. Telgmann, 327.00: to pay:—J. Nephew: Canoeman, 37.00: J. Sampson: Canoeman, 34.00: J. A. Stuart: Canoeman, 82.00: Booth & Shannon: Supplies, 5.12: Hudson's Bay Co: Supplies, 20.94: canoe, 12 00: V. W. Johnston: Supplies, 30 42: A. J. McLeod: Tent, 5 00..... 1,588 23
Services as Rangers at 2.50 per day:—J. D. McDonald, 457.50: trav. expenses, 2.50: Harry Jewel, 40.00: A. Milne, 167.50: trav. expenses, 20.55..... 688 05
Services as Rangers at 2.00 per day:—W. A Tait, 93.00: J. L. McDermott, 106.00: F. T. Mercer, 104.00: W. McIntyre, 131.00: J. C. Henry, 131.00: A. Ranger, 118.00: J. Martin, 71.00: J. Moutray, 119.00: W. Brady, 27.00: F. Caplante, 96.00: D. McDougall, 14 00: W. B. Kennedy, 118.00: J. Baudry, (1901) 131 00: (1902) 131 00: A. Garceau, (1901) 131.00: (1902) 131.00: G. Page, (1901) 131.00: (1902) 131.00: W. Parent, (1901) 131.00: (1902) 131.00: N. Mongean, 131 00: J Lariviere, 166 00: C. H. Burns, 131.00: H. McPhee, 130.00: C. McGhie, 127.00: H. A. Wilson, 7.00: W. B. Corrigan, (1901) 92.00: (1902) 101.00: H. Brown, 131.00: J. Avery, 127.00: J. Cochrane, 117.00: A. Henderson, (1901) 131.00: (1902) 126.00: F. Tooke, (1901) 131.00: (1902) 126.00: D. Lawson, (1901) 131.00: (1902) 131.00: O. R. Towers, 43.00: G. M. Aikens, 50 00: E. G. Kerr, 131.00: J. Doige, 131.00: W. Cattanach, 131.00: J. Mouncey, 120.00: A. Robillard, 85.00: Jno. Ebert, 93.00: R. F. Buchanan 64.00: C. E. Rawson, 58.00: B. A. Grant, 79.00: T. A. Millichamp, 123.00: W. Young, 125.00: S. G. Houghton, 86.00: J. B. Yuill, 62.00: J. Johnson, 130.00: W. M. Brimacomb, 118.00: J. Crombie, 118.00: D. Jonason, 118 00: F. Green, 8.00: J. Finnerty, 82.00: W. McKay, 105.00: R. McElroy, 105.00: W. G. McMartin, 105.00: A. May, 131.00: Geo. Archer, 118.00: C. Hurd, 106.00: N. Payette, 91.00: G. Speedborough, 125.00: T. Erwin, 136.00: A. D. Carswell, 79.00: J. Humphrey, 131.00: W.H Burgess, 114.00: T. Walters, 119.00: T. Ouissant, 112.00: A. D. Grozelle, 123.00: R. Owens, 114.00: W. Bethune, 117.09: P. R. Christie, 122.00: W. Hunt, 112.00: W. Marshall, 105.00: W. A. Frain, 118 00: J. Lajoie, 131.00: I. Dufont, 119.00: J. S. M. Hoff, 134.00: A. McInnes, 114 00: W. Kennedy, 115.00: J. Arno, 83.00: M. Mulvihill, 114.00: R.L McFarlane, 131.00: A. McNabb, 131.00: L. P. Didier, 104.00: G. Wallace, 117.00: H. E. Long, 117.00: G. D. McLaren, 145.00: T. Bromley, 100.00: C. Collins, 106.00: H. May, 130.00: T. Skuce, 136.00: Jos. Smith, 130.00: C. Haley, 136.00: W. Johnston, 117.00: A. Macdonell, 136.00: L. F. Seeley, 88.00: D. McGuey, 136.00: L. Jones, 94.00: J. L. Labrash, 129.00: J. Fitzhenry, 131.00: T. Marks, 122.00: B. Lavois, 131.00: E. B. Weart, 131.00: G. F. Burns, 106.00: L. Smith, 122.00: C. Lorenze, 96.00: C. Forbes, 131.00: R. D. Thompson, 131.00: P. Groulx, 131.00: O. Guertin, 131.00: J. Koch, 125.00: J. Potvin, 131.00: W. McIntyre, 136.00: F.A.H.Thompson,131.00: A.McLeod,131.00: E.R.McColgan,121.00: J.Aylward,103.00: Jno Price, 80.00: A. McDermid, 61.00: Geo. Cole, 132.00: T. Coglan, 136 00: Jno. Kelly, 105 00: H. Denison, 136 00: F. W. Scott, 127.00: J. Orme, 136.00: Z. Pilon, 116.00 J. H. Findlayson, 118.00: C. Grenkie, 131.00: J. Reynolds, 104.00: W. Briden, 128.00: R Conway, 131.00: Jos. Montray, 131.00: G. Turner, 114 00: W. Paul, 131 00: E. G. Kerr, 131.00: Fred Fisher, 131.00: L. Bellow, 131.00: J. D. Willson, 129.00: G. Campbell, 131.00: J. Gagnon, 121.00: Ira Campbell, 131.00:

CHARGES ON CROWN LANDS.—*Continued.*

FIRE RANGING.—*Continued.*

F. Borland, 110 00: Jas. King, 131.00: P. Trudeau, 113.00: A. Turcotte, 55 00:
E. Borron, 131.00 P. Whit-, 56.00: T. E. Grawberger, 131.00: W. W. Carroll, 116.00:
F. Columbus, 131.00: W. McDonell, 88 00: A. Meekly, 105.00: I. Labre, 110.00:
O. LeBlanc, 131.00: G. Raymond, 109.00: A. McColl, 131.00: D. A. Ritchie, 51.00:
R. Bovrill, 64.00 G. Ritchie, 68.00: D. Curtin, 131.00: J. Doolittle, 104.00:
J. J. Bowland, 131.00: A. Hillman, 131.00: P. D. Volker, 131.00: T. Dillabough, 119 00:
A. Trudeau, 54.00: T. Anderson, 131.00 J. Guthrie, 131 00: W. C. O'Neill, 100.00:
J. LaMarche, 130.00: G. Piper, 131 00: J. Driver (1901), 129 00: (1902), 130.00:
R. Piper (1901), 131.00 (1902), 131.00.. W. Rath, 131.00: H. Burke, 131.00:
T. B. Dunn, 131.00: M. Regan, 90.00: A. J. McDonald, 113.00: Robt. Brown, 131.00:
A. Cooper, 125.00 E. Gould, jr., 152.00: W. Boucher, 131.00: J. Scholfield, 131.00.
Geo. Jackson, 131.00: C. Wilson, 90.00: X. Thivierque, 105.00: H. Campbell, 131.00:
J. LaFrance, 11 00: M. W. Linton, 131.00: J. McAdam, 149.00: L. G. Randall, 131.00:
J. W. Munro, 131.00: J. Fraser, 90.00 D. M. McIlroy, 131 00: J. Winters, 72.00:
R. McGaney, 117.00: A. McMullen, 120.00 J. Burns, 120.00: J. Cozens, 131.00.
J. Dawkins 98.00 J. Gown, 119.00: P. Smith, 131.00 : J. Scantlin, 127.00:
P. F. O'Neill, 25 00: M. James, 96.00: J. Kerby, 44.00: M. Lemyre, 95.00:
J. McCaffrey, 131.00: P. Sheridan, 129.00: T. Cunningham, 131.00: A. Kennedy, 104.00:
O. Emlaw, 47.00 A. E. Winters, 119.00: J. Mallow, 56.00: F. Flynn, 131.00:
R. Henderson, 113.00: J. C. Henry, 131.00: T. Gengenon, 106 00: S. Brannon, 120.00:
J. Contway, 131.00: J. McCreary, 131.00: P. McGinn, 131.00: G. M. Cardiff, 131.00:
M. Hayes, 130.00: J. Campbell, 137.00: V. Buelar, 85.00: P. Kearns, 131.00:
W. Martin, 84.00: N. J. Kennedy, 9.00: O. Bellefuille, 105.00: J. McCauley, 40.00:
C. H. Burns, 78.00: G. J. Moore, 131.00: J. Cochrane, 132.00: J. Gagnon, 105.00:
W. Burland, 140.00: W. J. McKinley, 105.00: O Saucier, 101.00: A. Latour, 131.00:
W. H. McDermott, 117.00: W. Bruchatz, 73.00: H. Logan, 87.00: J. O'Connor, 131.00
Mark Malloy, 131.00. .. .. $28,304 00

Services as Rangers at 1.50 per day :—J. Tyson, 30 75: A. Groulx, 59 25:
J. D. McLaren, 78.75: E. LeBlanc, 97.50: N. Gagnon, 97.50: J. C. Armstrong, 97.50.. 461 25

Services as Rangers at 1.25 per day :—J. T. G. White, 66.25: E. Vaudette, 79.38:
J. Francois, 81.25..... ..... 226 88

Assistance extinguishing fires :—
Rathbun Co'y, 186 48: J. J. McFadden, 119.00: Pembroke Lumber Co, 56.60:
Hawkesbury Lumber Co. (1901), 1,182 20 A. & P. White, 64.13:
Beardmore & Co, 26.63 J. R. Booth, 574.76: Ontario Lumber Co, 55.50:
St. Anthony Lumber Co, 50 19: N. N. Wright, 7.00: Geo. Gordon & Co, 60.00:
Huntsville Lumber Co, 14.17: Gilmore & Co, 2.50: E. T. Lamb, 9.00:
Morgan Lumber Co, 7 50: McLachlin Bros. 161.49: C A. McCool, 12 00:
R. H. Klock & Co, 1 50: N. & A. Dyment, 3.00: Munro Lumber Co, 10.50:
Hull Lumber Co, 173 03: Thos. Mackie, 116.50: Victoria Harbor Lumber Co, 12.50:
The Dickson Co, 8.63: Mickle, Dyment & Son, 98.00.... ..... 3,012 81

Hudson's Bay Co: Postage on fire notices 1 34

Jacob Hose: Tools for rangers..... 19 75

34,302 31

Less refunds by owners of timber 205 00

34,097 31

CULLERS' ACT. ($84.24).

Services as Examiner :—
W. Turnbull, 8.00: D. L. Mather, 4.00: J. Murdock, 8.00:
E. Garrow: Use of school room, 1.50 C. F. Fangridge: cleaning school house, 2.00:
J. B. McWilliams: Travelling expenses, 10.60: H. Munro: travelling expenses, 11.10:
Sundry newspapers: Advertising, 39.04..... 84 24

CROWN TIMBER AGENCY, QUEBEC. ($2,070.34).

B. Nicholson: Twelve months' salary as Agent..... ..... 1,400 00
T. Harvey: Services as messenger, 150.00: M. Fitzgerald: Assistance in office, 10 00... 160 00
Department Trade & Commerce: Rent of office, 125 00: Postmaster: Rent of box, 4.00.. 129 00
W. J. & G. Mulroney: Postage stamps, 45.00: stationery, 6.72: V. Giroux: Soap, 1.00.. 52 72
Buntin, Reid & Co: Stationery, 34.82.. G. N. W. Telegraph Co: Telegrams, 3.94 ..... 38 76
Mary Dugan: Office cleaning, 12.00: C. P. Railway Co: Freight charges, 1.22..... 13 22
H. Bordeneau: Cab hire, 8 00: B. Nicholson: Disbursements, 27.89: travelling expenses, 37.75 73 64
B. Nicholson: Allowance for travelling expenses to Toronto for session..... 200 00
Quebec *Chronicle*: Subscription 3 00

CROWN TIMBER AGENCY, OTTAWA. ($2,706.60).

E. J. Darby Twelve months' salary as Agent..... 1,250 00
S. C. Larose: do do Clerk..... 900 00
Sun Life Insurance Co: Rent of office.... .. .. 499 99
Postmaster: Rent of box and postage stamps, 23.45: Might Directories: Directory, 3.00.. 26 45
James Hope & Son: Stationery, 19.71: Butterworth & Co: Stationery, 4.20..... 23 91
Ottawa Surgical Mf'g Co: Rubber gloves, 2.25: Ontario *Gazette*: Subscription, 4.00.... 6 25

CHARGES ON CROWN LANDS.—*Continued.*

SURVEYS ($32,887.97).

D. J. Gillon: Balance survey Townships Shenston and Tait	$ 493 69
T. B. Speight: do outlines Township Algoma	529 56
Alex. Niven: Advance surveys base and meridian lines, Algoma	4,800 00
Alex. Baird: do Township Cane	1,400 00
G. Silvester: do do Truax and Tudhope	2,550 00
W. Galbraith: do do Otto	1,000 00
A. S. Code: do do Lundy	1,000 00
T. B. Speight: do meridian lines Thunder Bay and Algoma	600 00
Alex. Niven: Survey meridian lines, Algoma	1,780 00
T. B. Speight: do Nipissing	2,033 19
A. H. McDougall: Services re survey McGregor Township at 7.00 per day, 115.50: To pay wages cook, axemen, etc, 119.00: Jas. Graham: Supplies, 12.00: W. F. Fortune: Supplies, 36.76: Rent of tent and outfit, 5.60	288 86
W. B. Ford: Services re survey Coots Paradise at 7.00 per day, 203.00: To pay Chainmen, etc, 106.51: Sundry persons: Allowances for rations, 13.50: Transportation of men, 14.65: Draughtsman tracing plan, 6.00: Stationery, 3.00: Registration fees, 1 05	347 71
L. V. Rorke: Services re survey boundaries Marter Township	200 00
J. Cozens: Services re survey North limit timber berths, 157, 163 and 169	652 50
T. B. Speight: do Township Eby	1,606 64
A. H. McDougall: do do Ames	1,607 76
Jas. Robertson: do do Gross and Davidson	3,218 81
J. H. Shaw: Services at 7.00 per day re survey French River, 259.00: To pay axemen, etc, 66.80: transportation, 21.75: supplies, 27.93	375 48
J. A. Dobie: Services re survey Township Catharine	1,710 35
T. R. Deacon: do do Mellick	2,178 75
J. G. Sing: do main traverse line Isls Georgian Bay at 7.00 per day, 337.50. Preparing plans at 5.00 per day, 70.00: To pay Chainmen, etc, 191.25: rations, 67.50: transpertation, 64.50	730 75
T. J. Patten: Services at 7 00 per day re survey timber limit north shore Lake Huron, 77.00: To pay Chainmen, etc, 39.75: Travelling expenses, board, etc, 33.05	149 80
Survey and Exploration Timber Berths, Algoma :— J. F. Whitson: Travelling expenses and disbursements, 74 57: To pay axemen, canoemen and cook, 150 00: T. Eaton Co: supplies, 1.31: Geo. Burford: Supplies, 2.25: Booth & Shannon: supplies, 42.80: F. Cochrane Camp stove, 6.85: toboggan, etc, 2.50: Purvis Bros: toboggan, 4.15: A Langevin: Toboggan, 2.00: Mississaba canoes, etc, 27.00: Hudson's Bay Co: Axes, etc, 2.00: McLeod & Co: Repairing tent, 2 30: Dominion Express Co: Charges, 7.00	324 73
J. F. Whitson: Survey timber berths, District Nipissing	136 00
T. J. Patten: Survey timber berths, Algoma, 273.00: To pay Chainmen, laborers and cook, 150.50: transportation, 224.74	648 24
J. F. Whitson: Travelling expenses re survey limits Onaping Lake, Algoma	28 70
Copp Clark Co: Balance on maps N. Nipissing, 50.00: Maps of Ontario, 235.00: Maps Sudbury Mining District, 308.00	593 00
C. Tarling & Co: Mounting maps, 96.45: Rice Lewis & Son: Iron posts, 25.00	121 45
Hamilton Times: Advertising re West Flamboro	42 00
J. F. Whitson: Ten months' salary as Draughtsman	1,000 00
H. Treeby: Twelve do do	740 00

MINING DEVELOPMENT, RAT PORTAGE OFFICE ($1,354.15).

L. C. Charlesworth: Twelve months' salary as Surveyor and Draughtsman	910 00
P. H. Austin: Services, 40.00 S. S. Scovil: Rent of office, 360.00	400 00
A. J. Parsons: Postage stamps, 17 00: Postmaster: Rent of box, 4.00	21 00
G. W. Smith: Stationery, 4.45: Campbell Bros: Furnishings, .45	4 90
E. Hall: Repairing awning, 1.25: L. C. Charlesworth: To pay office cleaning, 17.00	18 25

MINING INSPECTIONS AND EXPLORATIONS ($11,876.58).

D. G. Boyd: Twelve months' salary as Inspector	1,000 00
W. G. Miller: Eight do do Geologist and Inspector	2,400 00
do Arrears for field work 1901	500 00
A. P. Coleman: Twelve do do do	500 00
Belleville Office :— J. W. Wells: Nine months' salary as assayer, 750.00: A. G. Burrows: Three do 244.62: Assistants in Laboratory: F. J. Thorp, 336.41: W. Tugnett, 14.60: G. C. Reid, 100.60: A. Murray, .40: A. G. Burrows 15.50: N. Smith, 4.00: B. W. Myers, 1.25: L. L. Bolton, 42.50: C. W. Dickson, 15.00: S. T. Harris, 45.87: G. H. Hambly, 77.50: W. A. Lazier, 13.00: W. McGinnis, 33.00: R. Thompson: Excavating cellar, 18.00: Apparatus, appliances and supplies for Laboratory :— W. McGie, 115.21: Baker & Co, 122.29: F. J. Thorpe, 4.25: A. McFee, 1.50: Alex. Ray, 855.60: W. W. Chown & Co, 35.48: Hart Bros & Lazier, 4.75:	

CHARGES ON CROWN LANDS.—*Continued.*

MINING INSPECTIONS AND EXPLORATIONS.—*Continued.*

C. Hanley & Co, 1.00: A. J. McCrodan, .40: Dom. Publishing Co, 2.48:
J. Lewis & Co, 1.40: Belleville Pottery Co, 13.85: Rathbun Co, 6.75:
Syndicate Store, 1.50: W. S. Clark, 4.00: G. H. Hambly, 6.00:
W. C. Hays, 3.75 Weese Bros, .50: J. G. Frost, 1.80: Lyman Bros Co, 77.65:
Map and School Supply Co, 72.83: Mac Machine Co, 200.00: Thompson Estate, 25.00:
J. G. Ramsey & Co, 4.00: J. Foster, 5.20 Foote Mineral Co, 2.00:
W. Hoskins, 24.00 Greenleaf & Son, 46.61: Galbraith & Co, 60c:
J. F. Roblin, 12.00: Finnigan Co, 1.50:
Water Works Dept: Water, 40.00: R. Bryans & Co: peat fuel, 16.00:
Rathbun Co: Coal and wood, 8.75: Belleville Gas Co.: gas, 171.28:
C.C. Leavens 6 tons nut coal, 37.00: Mrs. Hart: cleaning, 27.00: Mrs. Sweet: cleaning, 2 00:
J. W. Wells: Travelling expenses and disbursements, 96.80:
Can. Express Co: Charges, 15.13: Dom Express Co: Charges, 4.35:
G. T. Railway: Freight charges, 17.70: Collector Customs: Duty charges, 3.00:
Cartage:—T. Soal, 18.00: J. Latta, 5.75: S. Caseley, 1.00: W Tugnett, 6.25:
J. Patterson, 25c: F. Butler, 25c: H. Yarwood, 25c: J. Thompson, 50c:
F. Young, 25c: G. Austin, 50c: F. H. McHugh, 25c: J. Dalton, 25c:
L. Love: Livery hire, 2.50: C. P. R. Telegraph Co: Telegrams, 58c:
G. N. W. Telegraph Co: Telegrams, 84c T. D. Carman: Printing and stat'y, 165.53:
J. W. London: Printing and stationery, 1.00: G Brower: Printing and stat'y, 1.50:
Postmaster: Rent of box, 2.00: A. A. Gibson. Postage stamps, 111.50:
Warwick Bros & Rutter: Printing, 25.31: Schapirograph: Duplicator, 8.00:
Belleville Rubber Stamp Works: Stamp and seal, 4.50:
Manufacturers List Co: Buyers guide, 2.50:
Subscriptions:—*Burks' Falls Arrow*, 1.00: *Perth Courier*, 1,00: *Renfrew Mercury*, 1.25:
Belleville Chronicle, 3.00: *Trenton Courier*, 1.00 *Industrial Review*, 1.00:
Illustrated Weekly Times, 1.00: *Parry Sound Star*, 1.00: *Canadian Manufacturer*, 1.50:
Bobcaygeon Independent, 1.00: *Wabigoon Star*, 1.50 . . . . . $4,178 67

Michipicoten Office:—
Hudson's Bay Co: Rent of office, 60.00: D. G. Boyd: trav exps and disb'sements, 66.95:
British American Express Co: Charges, 4.00: Dom. Express Co: Charges, 2.00:
Algoma Central Ry. Co: Freight charges, 4.28: W. Kindle: Hire of boat, 5.00:
J. McKay: Teaming, 3.00: E. D. May: Teaming, 5.00.
Hudson's Bay Co: Provisions and supplies, 25.20: J. O. Cameron: Repai'g canoe, 4.00:
Ballard Electric Machine Co: Blow pipe sett 2.70: C. R. Smart, Pack straps, 1.00:
Vannevar & Co: Mineral indicator, 1.00: T. H. Armstrong: Postage stamps, 6.00:
John Andie: Wages moving, 5.50 wood, 2.50:
J. Lagarde: Canoeman at 1.50 per day, 7.50: rent of canoe, 1.50:
Globe Printing Co: Subscription, 1.00 . . . . . 208 13

A. P. Coleman: Travelling expenses and disbursements *re* Geological Explorations, 487.72:
Munns & McKiver: Livery hire, 10.00: A. H. Harkness: Photos, 2.70:
F. Cochrane: Tally registers and compass, hardware, etc, 24.04:
D. Baikie: Stationery & supplies, 12.68: Vannevar & Co: Stationery and supplies, 2.25:
J. K. Henry: Drawing board, 1.25: R. McDonald: Hammers, 10.50:
C. Tarling & Co: Mounting maps, 2.30: D. Jacobs & Co: Repairing tent, 2 25:
G. H. Lennon: Provisions, 7 94: A. H. A. Robinson. cement & rock analysis, 20.00:
G. Lamb: Making rock sections, 15.40: J. Empey: Assistant at 2.00 per day, 54 00:
F. Y. Harcourt: Assistant at 1.00 per day, 78 00: travelling expenses, 17.90:
M. T. Culbert: Assistant at 2.00 per day, 182.00: trav. exps. and disbursements, 51.89:
L. C. Grafton: do 174.00: do do 37.65:
L. L. Bolton: do 170 00: travelling expenses, 47.05:
allowance for rations, 50.40:
Services as Guide. D. Campbell, 15.00: C. Du Bois, 121.25: E. Stapley, 66.00.... 1,662 17

W. G. Miller: trav. exps. & disburs inspecting, 499 53:
J. G. Ramsey & Co: Photo supplies, 5.55: J. W. Hillman: Services as guide, 2.00:
Joseph Daigle Assistant, 82.00 J. Chemaness: Assistant, 52.00:
Provisions and Supplies:—F. Cochrane, 3.00: George Benger, 26.78:
Wells & Emmerson, 10.30: W. T. Trenks, 9.00: E. W. Hogan, 4.54:
Hudson's Bay Co, 29 59: G. H. Lennon, 13.81 . . . . . 738 10

W. E. H. Carter: Travelling expenses and disbursements as Inspector, 372.70:
J. G. Ramsey & Co: Photo supplies, 9.00: Young's Art Studio: Photo supplies, 2.90:
J Bruce: Photo supplies, 2.60: Vannevar & Co: Stationery, 85c:
Prospector's supplies:—Rice Lewis & Son, 1.75: A. Ross & Co, 1.50:
Jas. Foster, 1.50: F. W. Micklethwaite, 2.20:
Jas. Dickey: tent, 6.00: Dom Express Co: Charges, 3.10:
Livery Hire:—T. Pickard, 13.25: J. Adams, 9.00: Davis & McKenzie, 6.00:
J. Denmark, 12.00: Delbridge Bros, 35.00. . . . . 479 35

W. A. Parks: Travelling expenses and disbursements *re* Geological explorations 84 23

E. B. Borron: Balance disbursements *re* explorations, height of land, north of Lake Huron, '95 125 93

COLLECTION OF MINERALS ($120.00).

Alex. Parks: Collection of mineral specimens and crystals. 20 00

F. E. Gibbs: Balance collection silver ore and gold specimens 100 00

CHARGES ON CROWN LANDS.—*Continued.*

MINING SCHOOLS (47,071.80)

School of Mining, Kingston:	Grant for maintenance of school	$23,500 00
do do	Grant towards erection of buildings (Cap. 44, 1 Ewd. VII)	22,500 00
W. L. Goodwin:	66 days services summer mining classes	330 00
do	Travelling expenses and disbursements of self and J. W. Bain	421 80
J. W. Bain:	64 days services summer mining classes	320 00

DIAMOND DRILLS ($5,451.45).

E. K. Roche: Services as Manager, 832.20: trav. exp. and disbursements, 136 81..... 969 01
O. R. Smith: do 693 99: do do 42 75 .... 736 74
W. W. Roche: Services as Acting Manager, 426 52: do do 212.42 ..... 638 94
Wages as assistants at 2.00 per day:—
Joe Smith, 189.50: E. La Duke, 95.00: D. Bennille, 10.00:
R. Flaherty, 85.50: P. Brennan, 59.50. A. C. Chapman, 452.50:
Secord Owen, 128.00: M. A. Ellis, 87.75: E. Ducas, 34.00:
M. Quinn, 10.00 C. Owen, 52.00. George Mudge, 116.00
J. Bostrom, 40.00 ..... 1,359 75
Wages as assistants at 2.30 per day:—
Samuel Owen, 529.18: B. Berglund, 67.89: J. Boyle, 373.75 ..... 1,030 82
Wages as assistants at 1.50 per day:—
John Baker, 44.25. John King, 69.75: E. Wills, 38.25.
John Grearson, 6.37: A. Boulay, 15.00: R. Cryderman, 56.61:
C. Cryderman, 41.25: A. W. Fry, 46.50. G. W. Quantz, 24.00 ..... 341 98
Wages as assistants at 1 25 per day:—
James King, 2.50: Wm. King, 10.25..... 12 75
Pay lists, wages at sundry times 144 48
Carbons: Bernard Bandler, 877.33: Thompson Estate 396.86
Yager Lexow Co. 1,013.81: R. E. Mace, 816.80..... 3,104 80
Castings and supplies for drills:—
Sullivan Machinery Co., 1,089.04: Spalding & Stewart, 3.50: A. Coutts, 3.00:
Jas Reid, 21.91: Northey Co., 49.38. Wells & Emmerson, 135.66:
Woodside Bros, 59 46: South River Mercantile Co., 2.34: Tolton & Garnard, 1.25:
Waterous Engine Works, 7.80: A. E. Peters, 1.85: R. Horne, 84.42:
W. Felton, 1.65: Rice Lewis & Son, 3.64: Can. Copper Co:, 4.00:
F. Rioux, 5.23 ..... 1,474 13
Lumber:—
W. Allen, 16 66: South River Lumber Co., 16.60: L. A. Cooper, 10.50:
Sudbury Building Supply Co., 13 83 ..... 57 59
Travelling expenses:—
J. J. Walsh, 17.60. A. W. Fry, 6.35: J. Eastwood, 8.50: M. A. Ellis, 11.40. 43 85
Freight charges:—
G. T. Railway Co., 157.36: Ont. & R. R. Ry., 261.09: C. P. Ry. Co., 97.10:
Can. Northern Railway, 50.44..... 565 99
Dom. Express Co: Charges, 30.80: Can. Express Co: Charges, .50 ..... 31 30
Teaming, drills, supplies, etc.:—
Peter King, 6.00: Wm. King, 189.62: W. Wills, 3.00: C. Fortier, 24.45:
H. E. Knobel, 35.60: J. Grearson, 3.00: R. Wilson, 5.50: S. J. Bugey, 5 50:
J. Dette, 16.00: G. W. Frawke, 3.00: J. Paget, 29.50: A. McDonald, 3.00:
R. H. Flaherty, 14.40: J. T. Cryderman, 181.50: R. Eastwood, 12.00:
Rawn & Fortier, 14.25: T. R. Eastwood, 6.00: J. Eastwood, 24.00:
W. Munns, 3.00: A. Harvey, 7.50..... 586 82
Wood supplied:—
A. Coutts, 41 25: R. H. Flaherty, 208.07: W. R. McLean, 3.00:
J. Miller, 4 00: Jas. Coutts, 12 50: J. Grearson, 7.25:
L. McCann, 45.94: A. Russell, 6.90: G. W. Frawke, 2.50:
J. Willoughby, 1.50 ..... 332 91
Bell Telephone Co Messages, 3.00: G. N. W. Telegraph Co: Telegrams, .25 ..... 3 25
W. J. Clark: Postage stamps and stationery, 2.35: W. Whatmough: Stationery, 3.67.. 6 02
Advertising:—
Marmora *Herald*, 9.00: Wabigoon *Star*, 13.60: Sudbury *Journal*, 6.20:
Sault *Express*, 9.60. *Industrial Review*, 13.60: *Globe* Printing Co, 78.00:
Fort Frances *Times*, 9.52: *Can. Mining Review*, 12.50: Rat Portage *News*, 18.36 170 38

11,611 51

Less refunded by mining companies, proportion of expenses:—
Milton Brick Co., 171 43. MacKenzie & Mann, 261.09: Can. Iron Co., 423.22:
B. C. Mining Co., 160.00: R. Pyne, 323.40: G. Gibbons, 180.86:
G. Archer, 37.74: R. McConnell, 317.10 G. W. Fawke, 41.75:
L. Stockton, 1,059.54: J. M. Clark, 2,950.01: H. B. Harrison, 113.34:
G. Paget, 104.33: C. W. Kennedy, 16.25 ..... 6,160 06

5,451 45

CHARGES ON CROWN LANDS.—*Concluded.*

IRON MINING FUND ($25,000.00).

(R.S.O. 97, cap. 36, sec. 11.)

Hamilton Steel and Iron Co:	Bounty on ore yielding	22,070.03	tons pig iron		$9,993 60
Can. Iron Furnace Co:	do	31,158.98	do		14,108 46
H. C. Farnum	do	764.02	do		345 93
Assignees S. Wellington:	do	78.08	do		35 35
L. Meyer:	do	804.50	do		364 24
T. C. Gordon.	do	263 89	do		119 39
Sewmillee Iron Mfg. Co:	do	74 29	do		33 63
Total Charges on Crown Lands					$227,070 05

REFUNDS.

EDUCATION ($1,069.78).

Subscription, Superannuation Fund :—
Estate late Denton Johnston: 18.78: Estate late E. D Parlow: 107 50:
Estate late Michael Belleau..271.50: Alvin J. Moore: 267.00:
R. McWhorter: 45.00: F. C. Humberstone 14.00: $723 78

Normal School Fees @ $5.00 each :—
Nellie Dimma W. A. Matthews: A. A. Lomas: Mary C. L. Mackie:
Bertha J. Wheadon: J. S. Vollett: N. McDonald: Kate M. Blain: Edith B. Frost:
Ada Lind: Alice M. Banks: A. A. Hallett: Dora G. Gale: Louisa Green:
Jennie French: C. H. Dodds: Elizabeth Kehoe: Maurice Mackey: Allen Latourell:
Rhoda Waghorne: Mrs. B. M. Williams R. H. Carbert: Gertrude Laturney:
A. L. Langford: M. N. Corley Iva E. Clark: Gloria D. Sizer: Ira Hammond
J. J. McGill: Nellie Kerr: Nellie Halladay: Edna W. Wood Lucinda Ratter:
Kate McGillis. M. J. Newell: Cora E. Halladay: Mabel Maybark: Annie Fielding:
Mrs. J. S. Clark R. Chambers: S. Trotter: F. J. Lawrence: M. M. Chambers:
M E. Clarke H. D. Sherwood: Marie McLean: M. A. Fisher Cecilia A. Taylor:
Edith K. Rowand: J. W Coram. Frances Pardee: Jennie Paget G. W. Langdon:
Edna L. McQuoid Alicia Marshall A. Lillian Bull: May W. Passmore: L. E. Lynd:
Etta Kennedy: Katie Cane Ellen Mucklehearn: C. W. Davidson Hattie Pauline: $15 00

Normal College Fees Jessie Nasmith..... 15 00

Examination Fees :—Nina Campbell, 2.00 Annie M. Elgie, 3.00: H. J. Th mas, 1.00:
R. M. Timberlake, 1.00: R. H. Darling, 1.00 J. Maguire, 1.00: G. G. Strathy, 3.00:
F. Silverbrick, 1.00: A. Harley, 3.00 ..... 16 00

CROWN LANDS ($21.090.19).

Refunds on lands and mining locations :—
J. V. Welsh: islands Rainy Lake, 28.05: Waldron & Hodges: WD 678, 291.00:
W. A. McEwan: Lot 10, C. 4 Johnston, 10.25: W. J. Jennings l'ds Stewart Lake, 170,00:
J. C. Dark: Lot 10, Con. 1 Burk, 30.00: P. J. Campbell: 9 in 1 Casey, 7.35:
N. Leziert: NW ¼ Sec. 13 Thompson, 15.00: SE ¼ Sec. 12 Thompson, 19.00:
Campbell & Halstead: H W 31 and 35, 5 50: C 18, 20, 21 and 22, 22 50:
Chas. Wyner W ½ 5 in 11 Burleigh, 2.00: F. C. Fisk: G 537-9, 50.00:
McDonald, McMaster & Geary: 20 in 1 Lount, 32.00:
W. Hendrie. islands Lake Nipissing, 50.00: A D Cartwright: 64-65 P, 219.50:
J. Eward: W½ N ¼ Sec. 5 Nelles, 81.00: E. C. Tripp: G 547-8, etc. Rainy River. 9.50:
Dobie & Co: Lot 12 in 3 Day, 119.50: W. Beatty: 826-30 X, 100.00:
J. B. Dickson..N ½ Lot 12 Dryden, 40.13 F. H. Keefer: near Zenith Mine, 50 00:
Alex. Flett: 10 in 2 and 3 Johnston, 10.00: J. O. Beaudro H W 185, 84.50:
W Watson: H W 188, 170.00. W. J. Elliott: N pt 5 in 2 Watten, 192.50:
Jas. Murphy N ½ 6 in 4 Conmee, 160 00: W. B. McAllister N ½ 17, 8 and 9 Barrie, 71.25:
G. Z. Trudeau: SW ¼ Sec 26 VanKoughnet, 40.00:
E. W. Symmes: near Ingolf Station, 20.00 F. H. Keefer: R 740-3, 200.00
Clearwater Gold Mng. Co.: BG 164-7, 377.50: A. Lenlier: D 21, 38.50:
A. Leulier and B. Rochon D 97, 14.50
W. F. Longworthy: 904-5 X, and MacKay 301-2, 395.00:
Alfred Gravelle: 93 in Wa Wa, 25.00: J. T. Cryderman: E ½ etc., 75 Falconbridge, 40.00:
A. C. McLachlin JO 159, 82.50: D. Dewar: 14 in 8 Grattan, 50.00:
A. McKay: JO 43, 25.50: H. Ridout: McA 52, 51.50:
Jos. Watson: N ½ 3 in 4 Aberdeen, 160.50: Geo. Hammond N½ 3 in 6 Harley, 5.00:
D. Mills: SV 397-8, 117.00: E. Roach: Block D VanHorne, 15.00
W. H. Merrill: Lot 6 in 7 Pic, 25.00: Algoma Commercial Co: 1122-6 Michipicoten, 50.00:
J. Errington: N ½ Lot 12 in Hallam, 82.00: Folger Bros: Thunder Bay Dis't, 1,000.00:

REFUNDS.—*Continued.*

CROWN LANDS.—*Continued*

Ella L. Sloan: SV 390 Rainy River Dist., 7.00: A. Carss: HW 694.97 50: HP 376, 50.00:
A. White: HW 696-8, 13.00 H. P. Carr: Island B, 37.00: R. A. Cobb: 4, 7 RR, 60.00:
Colin Smith: 12 in F Rama, 10.00: J. Purvis: 31 in 8 Foley, 50.00:
A. H. Edmison: MH 102-3, 519 00: H. Hobbs: S ½ 12 in 1 Carpenter, 131.45:
J. P. Telford: Pt 5-21 Egremont. 32.40: W. J. O'Neill: N and S ½ 1 Wisner, 60.00:
W. T. Bachert: S ½ 5 in 2 Hagarty, 25.00: E. Seager: 462-35, 4.00:
H. H. Beck: SV 253 and 5, 63.00: J. R. Walker: SV 255, 116.50:
Kerr, Bull & Rowell: SV 241-6 and Steep Rock Lake, 453.00:
Silas J Griffis: D 329, 94.50: A. J. F. Cobb: Island 129, 20.00:
V. J. Foster E ½ 13 in 6 Bagot, 5.00: S. C. Smith: NE ¼, etc., Watten, 40.00:
G. J. Darby: SE ¼, etc., Salter, 200: W. E Millar 8 in 11 McClure, 10.00:
E. Appleton: S 442 Rainy River, 57.00: A. S. Cuthbert: S 441-2, Rainy River, 49.00:
J. E. Bird S 441-2 Rainy River, 13.00: A R. Davis: AD 0 13 Rainy River, 130 00:
Fred Rogers: SW ¼, etc., VanKoughnet, 80.00: Jos Scott: 9 in 1 Striker, 25.00:
J. McLeod: S 491, etc., 40 00: Geo Brown: S ½ 7 in 1 Kearns, 5.00:
T. Prendible: MH 243,51.00: Hon. R. Harcourt: Parts Lots 16 & 17 in 4 Wainfleet, 988.80:
H. V. Holmes: K 440, 96.75: T. R. Innes: Round Lake, 150.00:
C. P. Anderson: Round Lake, 150 00: W. J. Keating, 2nd C on. SR, Watten, 80.00:
J. G. Sing: Magee Island, 67.50: W. H. McKay, S 491, 30.00:
C. J. Agar: Lots 6, 7, 8, 9 Barrie, 10.00: F. H. DeGroat: 5, 7, 10 McMahon, 23.93:
D. Leash: 21-4 Mosa, 15 00: J. W. Hillman: S½ 7 in 5 Gladstone, 10.00:
F. R. Miller: EB 1, 12 00: J. A. Armstrong: N½ 7-6 Casey, 40.00:
Jno. Bruce: 4, 5, 6 Mayo, 400.00: S. Haryett: 13 in 4 Monteagle, 30 00:
M. L. Marks: 1-22 town plot Hilton, 25.00: A. T. Hamer: S¼ 4 in 2 Aberdeen, 9.63:
J. C. Maynard: HW 748, 6.00: C. J. Leitch: HW 133, 35 25:
Beatty, Blackstock & Co: Snider, 9.00: W. Lamb: 35 and 36 Aylesworth, 150.00:
E. Paquette: S 479 Melick, 200.00: L. Merier: E½ W½ 2 in 4 Rayside, 6 35:
A. F Botsford: N Vermilion Lake, 10.00: W. A. Werritt: Moose Lake, 41.84:
McVittie & Cochrane: Moose Lake, 17.00: A. J. Fenton: N of Steele Lake, 10.00:
A. R. McLennan: HW 133, 12 00: D. H Currie: HW 211, 90 00.
T. Wilson: Lots 15 16 in 9 Carlow, 24.00: Watson, Smoke & Co: HW 707, 30 00:
G. M Kempfer: HW 213, 25.00: W. L. Haight: Delhaven Island, 105.00:
J. A. Parkington: FM 169, 10.00 ..... $10,323 43

Mining Leases:—
Alex. Davidson: Lots in Pic, 56.30: Speight & Van Nostrand: S½ 3 in 5 Levack, etc, 4.98 61 28

Cost of Surveys:—
G. B. Abrey, 106.00: Jas McKenzie, 40.00: J. R. Grant, 6 44: C. Ross, 12 87:
F. A. Campbell, 92 44: Agur, Beck & Glines, 40.00: C. S. Boone, 20.08:
J. Logan, 20.09: W. J. Chapman, 25 08: H. H. Beck, 51.75:
Sanders & Carlton, 78.50: M. Harris, 60.00: P. A. Mulligan, 72.50:
G. H. Campbell, 12 50: D. C. Cameron, 108 50: Kerr, Bull & Rowell, 216.00:
W. A. Preston, 39.50: N. W. Hopkins, 15 00: F. H. Sangster, 20.00:
H. W. Selby, 148.15: C. E. Hewson, 20.00: J. A Parkington, 14.00:
A. H. Smith, 14.00: W. A. Werrett, 10 00: Michie & Noonan, 26 00:
D. F. Burk, 62.00 ..... 1,331 40

Ground Rent:—
E Stubbs, St. Joseph Island, 12.00: E R. C. Clarkson, NE¼ Ermatinger, 27.00:
Playfair & White, Shedden, 36.00: N Shore Lake Huron, 108.00 ..... 183 00

Timber due to settlers under (Cap. 29, Sec. 15, R.S.O. 1897.)
J. A. H Alexander, 1.29: J. McMurray 9.62: W H. Vigras, 21.78:
R. E. Driscoll, 12 87: C. Lorenze, jr, 29.75: C. Lorenze, sr., 45.55:
W. Whitehouse, 32.67: H. C. Wraight, 9.55: E. Topps, 12 75: H. A Taplin, 8.95:
J. W. Clark, 3.84: W. Vitch, 28.53: P. Folstrom, 20.98: W. Barr, 73.50:
Isaac Julien, 11.89: Mary Bogue, 20.42: J. Goode, jr., 14.25:
J. Healey, 3.63: W. Lasseter, 77.86: J. Estall, 34.16: E. O'Connor, 26.17.. 500 01

On account road allowance—Treasurer township of:—
Ashby, 11.94 Denbigh, .88: Anglesea, 87.60: Kaladar, .67:
Effingham, 94.00: Anson, 4.22: Anstruther, 220.51: Burleigh, .58:
Barrie, 2.18: Belmont, 1.44: Methuen .83: Bangor, 1.84:
Brougham, 4.34: Palmerston, 2.61: Monmouth, 18.67: Tudor, 20.35:
Wollaston, 1.54: Cavendish, 63.59: Galway, 22 22: Clarendon, 5.48:
Miller, 9 13: Chapman, 2.30: Christie, 187.24: Dalhousie, 1.78:
Lavant, .94: Darling, 5.68: Dungannon, 10.02: Faraday, 4.80:
Draper, 1 67: Elzevir, .88: Grimsthorne, 144.85: Ferris, 33.51:
Fraser, 96 08: Foley, 1.14: Glamorgan, 65.01: Griffith, 2.48:
Matawatchan, 3.30: Harvey, 7.47: Hinden, 37.62: Lutterworth, 1 41:
Hagarty, .03: Sherwood, 11.44: Jones, 1.53: Richards, 37.25:
Burns, 3.20: Himsworth, 24.29: Hagerman, 196.35: Joly, 16.30:
Kennebec, 3.32: Mayo, 10.14: Carlow, 4.14: Machar, 8.95:
Monteagle, .27: Herschel, 13.68: McDougall, 101.35: McKellar, 88.60:
Olden, 3.49: Oakley, 43.04: Ryde, 5.02: Radcliffe, 4.08:
Raglan, 16.07: Ridout, 62.33: McLean, 33 13: McClintock, 101.78:
Lawrence, 74.54: Stanhope, 54.92: Snowdon, 1.46: Elzevir, 13.35:
Grimsthorpe 132.59.. Bangor, McClure & Wicklow, 50.01:
Medora & Wood, 214.30: Orillia, Matchedash, 19.67.... .... 2,533 43

REFUNDS.—*Concluded.*

CROWN LANDS.—*Continued.*

A. S. Woodburn: Cancelled iron claims	$ 80 00
Olive Gold Mining Co: Dues on timber cut 1897-1900	283 32
E. V. Clergue. Iron claims cancelled	799 00
Huntsville Tanning Co: Maps of townships	4 00
W. Switzer: Dues on telegraph poles, NE¼ Sec. 16 Morley	39 05
W. E. Speers Dues on railway ties, posts and poles, SW¼ Morley	40 38
S. Pozet: Pulp wood. Con. 3, Harmer	37 75
J. De Caire: Railway ties, NW¼ Sec. 29, Morley	44 00
Louisa M. Gates Dues on pine timber	1,213 27
Estate Thos. Marks: Water, lot 6 in Neebing	10 00
N. Thibault: Iron claims cancelled	20 00
P. A. Leitch: Renewal prospector's license	10 00
G. C. Jones: Registration of transfer G 322	1 00
Pine Lumber Co: Dues collected under clearance No. 24	15 40
Geo. Gordon & Co: Timber cut in trespass season	284 15
J. C. Fraser: Cullers' fees	4 00
J. Malkin: Dues charged in Quebec on birch timber	16 54
Onaping Gold Mining Co: Pine timber on location	3,200 00
T. McGown: Map township Kehoe	1 00
N. Todd: Maps Waterloo, etc.	50
Hearst & McKay: Mining licenses not issued, 1899	25 00
E. Mosgrove: Inspecting 11 in 8 con. 23-4 Carden	17 50
D. M. Brodie: Arbitration fees, &c., lot 1 con. 6, May	11 78

MUNICIPALITIES FUND ($368.32)

Pension *re* Clergy Reserves:—	
Mrs. Martha Cronyn, 243.32: Estate late Mrs. H. S. Burnham, 125.00	368 32

LAND IMPROVEMENT FUND ($2,579 98).

Allowance under 16 Vic. Cap. 157, from proceeds of Crown Lands: Township of:—	
Arthur, 91.27: Admaston, 40.27: Elma, 48.86: Gwillimbury, W., 49.80: Kinloss, 48.91: Luther W., 19 81	298 92
Common School Lands: Township of:—	
Arran, 28.20: Ashfield, 62.54: Brant, 137.58: Bruce, 377.79: Bentinck, 187.03: Elderslie, 4.21: Egremont, 469 13: Glenelg, 33.63: Grey, 212.03: Huron, 51.07: Holland, 42.70: Kincardine, 85.85: Normanby, 370.10: Sullivan, 140.40: Saugeen, 59.57: Turnberry, 19.23	2,281 06

MISCELLANEOUS ($132.06).

Mrs. J. B. Boustead: Marriage license forms	1 00
J. Leitch: Algoma taxes	131 06
Total Refunds	$25,240 33

MISCELLANEOUS.

CHARGES ON REVENUE ($10,628.93).

Licenses:—	
Warwick Bros. & Rutter: Printing and bdg, 473.07: Riordon Paper Mills: Paper, 13.00: L. K. Cameron: Paper, 169.27: stat'y, 250.00: Mrs. Hubertus: Postage stamps, 250.00: Bell Telephone Co: Messages, .40c: J. K. Stewart: Travelling expenses, 239.35: F. X. Kormann: Travelling expenses, 20.00	$1,415 09
Succession Duties Act:—	
A. McDougall: Nine months' salary as Solicitor, 1,800.00:	
Frank Ford: Three do do 503.01:	
J. S. Rowland Twelve do Clerk and Stenographer, 650.00:	
A. F. McKee: Services as Stenographer at 10.00 per week, 139.25:	
Malcolm Currie: Services as extra Clerk at 14.00 per week, 349.70:	
M. O. Norris: Services as Stenographer at 8.00 per week, 48.00:	
Legal Services:—	
Clute Williams & Morden, 32.08: Collier & Yale, 2.39: F. C. Jones, 14.50: Washington Beasley, 61.70: Chisholm & Logie, 1,256.92: C. H. Widdifield, 21.66:	

MISCELLANEOUS.—*Continued.*

CHARGES ON REVENUE.—*Continued.*

H. W. Macoomb, 30.25: A. O. Jeffery, 10.60: J. Mc D. Mowat, 83.80:
Estate W. Douglas, 10.31: A. F. Wilson, 8.54: McLaren, McDonald & Co., 610.00:
Barwick Aylsworth & Co., 1,250.00 R. H. McConnell, 121.81: Kittermaster & Gurd, .52.
S. C. Macdonald, 22 89: J. J. Smith, 332.73: W. J. Dick, 5 00:
Guthrie & Guthrie, 40.00: J. S. McKay, 71.83: W. S. Buell, 6 56:
Maclennan, Cline & Maclennan, 16.14: John Williams, 34.17: W. A. Lewis, 6 06 .....
M. T. Johnston: Copies of evidence, McLaren Estate, 358.25:
Valuation Fee:—
R. Thompson, 4.00: F. M. Field, 2.00: H. S. Mara, 40 00:
T. W. McDermott, 25 00 D. Ormiston, 6.50: J. H. Richardson, 20.00:
Mrs. E. J. Dunnett, interest on deposit, 60.00:
Law Society: Solicitor's certificate and fee, 32.00:
Can. Legal Pub Co: Law list, 2 00 Can. Law Book Co: Law book, 2.20:
C. Gripton: Rubber stamp, 3.00 G. N. W. Telegraph Co: Telegrams, 2.20:
C. P. R. Telegraph Co: Telegrams, .50: Bell Telephone Co: Messages, 12.05:
Warwick Bros. & Rutter: Printing and binding, 41 75:
L. K Cameron: Paper, 5 87 Stationery, 200.86: Rolph Smith & Co: Stamping, 7.00:
Can. Express Co Charges, .25:
Mutual Reserve Insurance Co: Premium on Policy, A. McDougall, 214.40:
Dominion Life Insurance Co do do 724.35:
Mutual Life Insurance Co: do do 211.55..... $9,516 15
British America Bank Note Co: Law stamps, 112.50: Dom. Express Co: Charges, 1.80 .... 114 30
J. W. Mallon: Legal services, amendment to B. N. A. Act 25 00
Barwick, Aylsworth & Moss: Law costs *re* Asylum lands 356 10
L. V Percival: Search fees *re* Asylum lands 75
Sundry Newspapers: Advertising tenders, Old Parliament Buildings 151 15
W. Greer: Travelling expenses, circus licenses 105 10
J. E. Rogers: do do 61 35
Bank Commerce: Charges, collections, drainage coupons 94 49

11,839 48

Less refund J. F. Mowat, 1901, 4 55
do on account, printing, etc, 1,206 00 ..... 1,210 55

10,628 93

EXPENSES OF ELECTIONS AND ELECTION TRIALS ($82,463.51).

Costs as Returning Officer:—
Algoma Thos. Wigg, 1,348.75
Bruce, N: D Geddes, 848 96
Brockville: W. H. Cole, 569.21:
Brant, N: W. R. Wood, 376.53:
Cardwell C. Drury, 656.90
Durham, W: J. W. McLachlin, 430.58:
Dufferin: T. Bowles, 626 58.
Essex, S: J. C. Iler, 929.18:
Elgin, E: J. H. Coyne, 551.82:
Fort William and Lake of the Woods: Alex. M. Rose, 1,458.95:
Frontenac: Thos. Dawson, 680.25:
Grenville: P. McCrae, 668.28:
Grey, S: T. Lander, 610.68
Hamilton, E: J. T. Middleton, 587.77:
Haldimand: J. Baxter, 533.10:
Huron, E: R. G. Reynolds, 756.78:
Huron, S J. Laporte, 868 20.
Hastings, W: H. W. Day, 439.54:
Kent, E: P. D. McKellar, 835.85:
Kingston J. D. Thompson, 27.10:
Leeds: Geo. A. Dana, 676.72:
Lambton, E: W. McDonald, 706.32:
Lanark, N: P. McGregor, 573.84:
Lincoln: T. C. Dawson, 677 25:
Muskoka: J. E Lount, 2,251.34:
Middlesex, E: D. M. Cameron, 744.93:
Middlesex, N: D. S. Campbell, 558.73:
Nipissing, E: H. C. Varin, 874.86:
Norfolk, N: J. T. Murphy, 488 70:
Northumberland, E: A. E. Mallory, 725.79:
Ottawa: J. Sweetland, 1,054 36:
Oxford, S: G. R. Patullo, 670.01:
Ontario, S: J. F. Thaxton, 772.52:
Peel, K. Chisholm, 566.38
Perth, S: P. W. Whelihan, 680.58:
Addington, G. D. Hawley, 719.82:
Bruce, S: W. M. Dack, 585.66
Bruce, C: M. C. Black, 605.29:
Brant, S: W. Watt, Jr., 580.67:
Carleton: P. J. Coffee, 801.65:
Durham, E: J. O. Proctor, 508.22:
Dundas: T. McDonald, 594.92:
Essex, N: J. W. Askin, 849.80:
Elgin, W: D. Brown, 703.72:
Glengarry: J. Simpson, 563.20:
Grey, N: R. McKnight, 830.81:
Grey, C: C. H. Moore, 193.47:
Hamilton, W: R. K. Hope, 606 80:
Halton: D. Robertson, 560.89:
Huron, W: W. Robertson, 839.28:
Hastings, E: G. F. Hope, 565.44:
Hastings, N: H. O'Hara, 874 05:
Kent, W: J. R. Gemmill, 909.93:
King-ton: J. P. Gildersleeve, 430 52:
London: R. H. Dignam, 735.22:
Lambton, W: J Flint ff, 1,180.80:
Lanark, S: James Armor, 584 29:
Lennox: S. Gibson, 551.70:
Manitoulin: W. R. Abrey, 921.00:
Middlesex, W: S. Blackburn, 605.94:
Monck: J. E. Morin, 615.41:
Nipissing, W: H. D Leask, 846.46:
Norfolk, S: A. J. Donley, 503.80:
Northumberland, W: F. W. Field, 493 74:
Oxford, N: J. Brady, 822.89:
Ontario, N: G. Dryden, 948.38:
Parry Sound: Thos. Kennedy, 1,719.80
Perth, N: J. Hossie, 823 16:
Peterboro, E: B. Morrow, 747.16:

MISCELLANEOUS.—*Continued.*

EXPENSES OF ELECTIONS AND ELECTION TRIALS.—*Continued.*

Peterboro, W: J. A. Hall, 744 74: Prince Edward. Jas. Gillespie, 639.03:
Prescott: A. Hagar, 603.32: Port Arthur and Rainy River: A. W. Thompson, 1,540 59:
Renfrew, N: W. Moffat, 599.87: Renfrew, S: R. A. Campbell, 843.93:
Russell: A. Robillard, 939.97 Sault Ste. Marie W. H Carney, 684.93:
Simcoe, E: E. Robbins, 907.35: Simcoe, W: G. E. J. Brown, 622.00:
Simcoe, C. S. Lount, 535.42: Stormont: A. McNab, 674.20:
Toronto, N: Fred Mowat, 1,088.06 Toronto, S: Spencer Love, 1,654.58:
Toronto, E: J. H. Widdifield, 987.90: Toronto, W: C. Lindsay, 1,333.12:
Victoria, E: E. C. Young, 959 66: Victoria, W: J. McLennan, 558.80:
Welland: Jas Smith, 729.64.. Waterloo, N: J. Motz, 601.44:
Waterloo, S: J. D. Moore, 568 16: Wellington, E: J. Anderson, 815.03:
Wellington, W: A. S. Allan, 611.96: Wellington, S: J. Higinbotham, 564.19:
Wentworth, N: T. Henderson, 403 12: Wentworth, S: G. H. Palmer, 417.00:
York, E: James Massie, 592.08: York, W: Peter Ellis, 715.99:
York, N: J. J. Pearson, 662.13..... $72,849 44

Election Trials Services and disbursements as Sheriff :—
Grey, N: C. H. Moore, 13.60: Lincoln: T C. Dawson 13.25:
Middlesex, E: D. M. Cameron, 68.00: Oxford, S: Jas Brady, 129.25:
Perth, N: John Hossie, 15.25: Wentworth, N: J. T. Middleton, 13.25..... 252 60

J. S. Cartwright: Drafting and engrossing seventeen reports election trials, 90.00:
do Attendance at trials, 5.00: Services and disbursements—Lincoln, 16.70 111 70
Sheriff Mowat: Attendance at court, sundry election trials 40 00
W. Greer: Travelling expenses returning ballots Walkerton to Toronto..... ..... 12 75
do do *re* N. Grey investigation..... ..... 27 15
Æ. Irving: do do do 17 00
Justice McMahon: Services and expenses do 20 00
Attendance as witness *re* N. Grey :—
J. H. Carson, 3.00: Geo. Dyce, 3.00: C. C. Pearce, 4.00..... 10 00
Justice McMahon: Services and expenses *re* N. Norfolk..... .... 15 00
H. E. Irwin: List of additions and alterations to voter's lists..... 18 54
do List of voters registered under Manhood Suffrage Act. 55 14
C. Clarke: Copying election returns, 131.45: E. A. Maclaurin: Extra services, 200.00... 331 45
S. J. Crosby: Extra services, 100 00: M E. Conway: Services packing supplies, 66.00.. 166 00
M. Halley: Services packing supplies, 94.50: J. H. Pegg: do do 20.00.. 114 50
Warwick Bros & Rutter Printing and binding 3,167 15
Riordon Paper Mills: Paper.. .... 18 64
Donald Bain & Co: Testaments, 21.60: L. K. Cameron: Paper, 834.72: Stationery, 138.44 994 76
Kilgour Bros: Paper and envelopes, 520.00 Stationery supplied Returning Officers, 3,096.40 3,616 40
J. B. Smith & Sons: Boxes, 222.21: C. P. R. Telegraph Co: Services *re* returns, 25.00.... 247 21
G.N.W. Telegraph Co: Services *re* returns, 25.00: C.P.R. Telegraph Co: Telegrams, 1.55 26 55
Can. Express Co: Charges, 167.05: Dom. Express Co: Charges, 179.73.. ..... 346 78
Can. Transfer Co: Cartage, 4.25: W. Wright: Cartage, 50c..... .... 4 75

ONTARIO RIFLE ASSOCIATION, ($1,000.00).

C. C. Harbottle, Secretary-treasurer: Grant..... 1,000 00

ONTARIO ARTILLERY ASSOCIATION, ($500.00).

R. Myles, Treasurer : Grant 500 00

CANADIAN MILITARY INSTITUTE, ($100.00).

D. Donald, Secretary-treasurer : Printing historical papers..... 100 00

MANHOOD SUFFRAGE REGISTRATION, ($2,129.57).

Services as Chairman board :—
His Honor Judge Ardagh, Barrie, 5.00: McGibbon, Brampton, 5.00:
Benson, Cobourg, 5.00: McWatt, Sarnia, 5 00: MacTavish, Ottawa, 10.00:
Deacon, Pembroke, 5.00: Collier, St. Catharines, 10.00 : Ermatinger, St. Thomas, 10.00:
Barrett, Walkerton, 5.00 : McDougall, Toronto, 10.00 : Finkle, Wookstock, 10.00 :
W. Elliot, London, 10.00: Johnston, Sault Ste. Marie, 5.00:
Wilkison, Napanee, 5 00: Horne, Sandwich, 5.00: Creasor, Owen Sound, 5 00:
Macdonald, Brockville, 5 00: McCarthy, Orangeville, 5.00: Weller, Peterboro, 5.00:
Barron, Stratford, 10.00 ; Bell, Chatham, 10.00... .. .. 145 00
Jno. Duff, Kingston, 20.00: J. F. Hare, Windsor, 10.00: G. C. Currie, Picton, 5.00:
F. Woodyatt, Brantford, 10.00 G. W. Wells, Simcoe, 5.00: J. A. McDougald, Cornwall, 5.00:
H. R Bedford, Deseronto, 5.00: C. Seager, Goderich, 5.00 : A. McKinnon, Guelph, 10.00 :
Alex. Logan, Niagara Falls, 5.00 : L. T. Barclay, Whitby, 5.00 : D. Chisholm, Berlin, 5.00 90 00
L. K. Cameron : Paper, 133.59 : Warwick Bro's & Rutter : Printing and stat'y, 1,058.98.... 1,192 57
Newspapers, advertising where to register :—
Star Printing & Publishing Co, 300.00: *Globe* Printing Co, 383 40..... ..... 683 40
Charges :—Can. Express Co, 12.30: Dom. Express Co, 6.30 .... 18 60

MISCELLANEOUS.—*Continued.*

VOTERS' LISTS, ($9,751.52).

Services and expenses :—

Algoma, E: Judge Johnston, 336.10:
Algoma, W: Judge Fitzgerald, 370.00:
Bruce: Judge Barrett, 143.97
Brant: Judge Hardy, 72.20
Dufferin: Judge McCarthy, 36.20:
Essex: Judge McHugh, 22.10:
Essex: Judge Horne, 78.20:
Elgin: Judge Ermatinger, 24.85.
Elgin: Judge Hughes, 190.45:
Frontenac: Judge Price, 118.80:
Grey: Judge Creasor, 126.90:
Judge Morrison, 215 80:
Hastings: Judge Fralick, 251.80:
Huron: Judge Doyle, 152 70:
Haldimand: Judge McMillan, 85.16:
Kent: Judge Bell, 120.85:
Lambton: Judge McWatt, 140 00:
Lanark: Judge Reynolds, 18.95:
Lennox-Addington: JudgeWilkinson,161.20: Leeds & Grenville: JudgeMcDonald,117 42:
Lincoln: Judge Senkler, 60 60
Judge Carmen: 94 90
Middlesex: Judge W. Elliot, 178.66:
Judge Edw. Elliott, 69 10
Manitoulin: Judge McCallum, 165.08:
Muskoka: Judge Mahaffey, 371.25:
Northumberland & Durham: Judge Ketchum, 81.37:
Judge Benson, 95.55
Nipissing: Judge Valin, 95.36
Norfolk: Judge Robb, 89.75
Ontario: Judge McIntyre, 133 20:
Judge McCrimmon, 36.80:
Oxford: Dy.-Judge Mackay, 18.80.
Judge Finkle, 80 04:
Parry Sound: Judge McCurrey, 122.15:
Peel: Judge McGibbon, 132.45:
Prince Edward: Judge Merrill, 54.19:
Perth: Judge Barron, 115.75:
Prescott & Russell: Judge O'Brien, 25.85:
Peterboro: Judge Weller, 94 45:
Renfrew: Judge Deacon, 84.37:
Rainy River: Judge Chapple, 383.94.
Simcoe: Judge Ardagh, 204.30: Stormont, D. & Glengarry: Judge Lidell. 124.50:
Thunder Bay: Judge Fitzgerald, 137.70:
Victoria: Judge Harding, 59.40:
Waterloo: Judge Chisholm, 139.30:
Wellington: Judge Jamieson, 223.20:
Welland: Judge Fitzgerald, 106.71:
Dy.-Judge Cowper, 12.00:
Wentworth: Judge Snider, 130.65:
York: Judge Morgan, 347.70. $6,852 72

Services and disbursements as Sheriff :—

Algoma, E: W. H. Carney, 179.90
W. J. Moran (acting). 819 75:
Algoma, W: A. W. Thompson, 857.16:
H. C. Varin, 883.33:
Parry Sound: S. Armstrong, 20.90:
J. W. Humble, 137 76: 2,898 80

GRATUITIES ($17,648.00).

Gratuity on retiring from position :—

F. X. Kormann.....Clerk License Branch..... 1,200 00
J. J. Walsh.....do do..... 500 00
Robert Barber.....Inspector of Factories..... 1,000 00
W. A. H. Findlay.....Secretary, Crown Lands Department..... 255 00
Miss Adeline Shenick.....Head mistress, Girls' Model School, Ottawa..... 1,200 00
Mrs. M. J. O'Reilly.....Superintendent, Andrew Mercer Reformatory..... 1,000 00
E. B. Borron.....Stipendiary magistrate, N. Nipissing..... 1,000 00
F. Clarke.....Shoemaker, Hamilton Asylum..... 300 00
Peter Carpenter.....Assistant gardener, Government House..... 225 00
Jno. Fitzgerald.....do engineer, Blind Institute, Brantford..... 525 00
Annie Elkin.....do matron, Mimico Asylum..... 250 00
Geo. Besant.....Gardener, Toronto Asylum..... 496 00
J. R. Labelle.....Guard, Central Prison..... 417 00
Donald Rae.....Chief night attendant, Boys' Reformatory..... 500 00
Margaret Evans.....Attendant, Andrew Mercer, Reformatory..... 180 00
Jas. Urquhart.....Janitor, Normal School, Ottawa..... 400 00

Balance gratuity on retiring from position :—

Cecil MacKenzie.....Constable, Provincial Police, Niagara Falls..... 150 00

Gratuity late :—

D. Spence.....Secretary, Immigration branch..... 1,500 00
A. McCallum.....Bursar Agricultural College, Guelph..... 1,000 00
R. M. Bucke M. D.....Superintendent, London Asylum..... 2,000 00

On account gratuity late :—

James Fleming.....Inspector, Legal Offices..... 1,000 00
Alex McLaren.....Clerk, Woods and Forests branch, Crown Lands Department..... 500 00
E. D. Parlow.....Head master, Boys' Model School, Ottawa..... 500 00
W. Revell.....Draughtsman, Surveys and Patents branch, Crown Lands Department 500 00

Balance gratuity late :—

W. Drummond.....Accountant, Prisons' and Asylums' office..... 300 00
Sir F. A. Robinson.....Clerk, Surrogate office..... 400 00
Misses C. E. and A. M. Baldwin and Mrs. L. M. Baldwin-Cooke :—Additional late C. J. Baldwin *re* losses on raising and equipping regiment, rebellion 1837-8..... 350 00

TELEPHONE SERVICE ($4,187.40).

Bell Telephone Co., rent of telephones :—

Civil Government :—

Government House, 85.09:
Attorney-General's office, 153 50.
Education Department, 144.75:
Crown Lands Department, 186.33.
Public Works Department, 131.06:
Treasury Dept. and Premier's office, 172.84

MISCELLANEOUS.—*Continued.*

TELEPHONE SERVICE.—*Continued.*

Provincial Auditor's office, 45 00. Provincial Secretary's office, 139.50:
License Branch, 45.00: Registrar-General's Branch, 45.00:
Public Institutions Inspectors, 100.00: Department of Agriculture, 158.50:
Office of Inspector of Insurance, 63.50: King's Printer's office, 63.50:
Legislation :—
Speaker's office, 45 00: Law Clerk's office, 45.00: Library, 50.00:
Press Gallery, 21.48. Office of Leader of Opposition, 45.00: Express office, 45.00:
Administration of Justice :—
Police office, Niagara Falls, 127.00: Police office, Windsor, 41.25:
Judges' Chambers, Osgoode Hall, 45.00: Registrar High Court, Osgoode Hall, 25.00:
Secretary Law Society, allowance *re* telephone service Osgoode Hall, 55.00 .....
Bell Telephone Co., rent of telephones :—
Education :—
School of Practical Science, Toronto, 45.00. London Normal School, 62.17:
Ottawa Normal School, 22.50 .....
Public Institutions Maintenance :—
Toronto Asylum, 47.00: Mimico Asylum, 220.00: Central Prison, 155.00:
Mercer Reformatory, 90.00: London Lunatic Asylum, 198.00:
Kingston Lunatic Asylum, 80.00: Hamilton Lunatic Asylum, 147.50:
Brockville Lunatic Asylum, 75.50: Cobourg Lunatic Asylum, 79.53:
Asylum for Idiots, Orillia, 90.00: Boys' Reformatory, 80.00:
Blind Institute, 40.00. Deaf and Dumb Institute, 100.00:
Agriculture :—
Office of Registrar of Live Stock, 45.00:
Office of Superintendent of Farmers' Institutes, 50.00:
Agricultural College, Guelph, 95.09: Agricultural Farm, Guelph, 71.90
Western Dairy School, 7.50: Eastern Dairy School, 25.00 .....
Charges Crown Lands :—
Peterborough Agency, 50.00: Ottawa Agency, 42.50 .....
Miscellaneous :—
Fisheries' office, 102.50: Factory Inspectors' office, 87.50..... $4,187 40

REMOVAL OF PATIENTS ($7,133.56).

Philip Simser.....Twelve months' salary as Bailiff.....	900 00
Jno. J. Ryan. ..... do do	804 00
I. J. Johnston..... do do	704 00
E. Jenkinson: Services *re* collection from counties.....	100 00
Travelling expenses and disbursements: P. Simser, 1,410.00: J. J. Ryan, 700.00: I. J. Johnston, 1,100.00	3,210 00
Clothing, etc., for Bailiffs: Wheaton & Co, 11.00: J. W. T. Fairweather & Co, 12.00: John Guinane, 16.00: J. Macdonald & Co, 65.26: F. Hall & Son, 2.00: C. P. Industries, 15.00: J. Smillie, 54 00.....	175 26
Julian Sale Leather Goods Co: Bag for bailiff Simser.....	6 00
W. H. McKay: Expenses transfer of patients Rat Portage to Mimico L. A	153 40
Grand Trunk Ry Co: Transfer of patients :—Mimico to Cobourg, 72.95: London to Cobourg, 194 30. Toronto to Cobourg. 226.85: Hamilton to Cobourg, 141.80: Kingston to Cobourg, 54.95: Mimico to Brockville, 166.05. London to Brockville, 163.50:	1,020 40
W. T. Wilson: Trav expenses *re* transfer patients London to Cobourg...	5 10
H. E. Buchan: do do	4 25
Livery hire and baggage at Cobourg: Greer & Herkimer, 9.90: J. R. O'Neill, 31.25....	41 15
Mrs. Hubertus: Postage stamps.....	10 00

FACTORY INSPECTION ($6,350.56).

Twelve months' salary as Inspector :—J. R. Brown, 1,000.00: J. T. Burke, 1,000.00: O. A. Rocque, 1,000.00: M. Carlyle, 600.00	3,600 00
E. Conlin: Services as stenographer at 8.00 per week.....	332 00
J. Armstrong: Legal services *re* Portland Cement Co'y accident.....	22 25
Travelling expenses: J. R. Brown, 445 65: J. T. Burke, 700.00: M. Carlyle, 749.71..	1,895 36
Warwick Bros. & Rutter: Ptg and bdg, 78 65: Riordon Paper Mills: Paper, 5.72.....	84 37
L. K. Cameron: Paper, 29.32: stationery, 53.41	82 73
W. McMaster Postage stamps, 72.00. C. Gripton: Dating stamp, 4.00	76 00
Bell Tel. Co: Messages, 2 55: C. P. R. Tel. Co Telegram, .30	2 85
Might Directories: Directory, 6 00: Toronto Type Foundry Co: Cyclostyle roller, 1.25..	7 25
Creelman Bros: Exchange on typewriter, 100.00. supplies, 75	100 75
Jas. Dow. Commercial traveller's certificate for J. T. Burke	10 00
Int'l Association Factory Inspectors' Fees.....	10 00
Advertising :—*Can. Manufacturer*, 15.00: *Social Progress*, 9.00: *The Toiler*, 22.50: Official Souvenir, 50.00: Labor Directory, 2.50: H. U. Labor Directory, 2.50: *Can. Socialist*, 4.50: Labor Day Souvenir, 5 00: Allied T. & L. Assn, 5.00: *Industrial Banner*, 3.00: *Can. Implement & Vehicle Trade*, 8.00.....	127 00

MISCELLANEOUS.—*Continued.*

ARBITRATION CANADA AND QUEBEC ($9,844.45).

J. R. Forsyth: Thirteen months' salary as clerk		$1,300 00
do Travelling expenses and disbursements		54 13
Maclaren, Macdonald & Co: Legal services		790 00
Æ. Irving: Legal services, 2,050 00: allowance trav expenses to England, 600.00		2,650 00
Hon. Edward Blake: Legal services *re* Privy Council		1,931 47
S. V. Blake: Fees and disbursements do		976 66
Wyld & Osler: Legal services and disbursements as agent at Ottawa		65 20
L. A. Audette: Accountable, 2,000.00: N. R. Butcher: Copies of arguments, etc, 48.84.		2.048 84
L. K. Cameron: Stationery, 5.25: Warwick Bros. & Rutter: Ptg appeal case, 22.90		28 15

GAME INSPECTION ($9,757.25).

E. Tinsley ..... Twelve months' salary as Chief Warden		1,200 00
J. H. Pegg..... do Clerk		720 00
J. H. Willmott..... do Warden		450 00
F. C. Quallins ..... do do		400 00
J. A. Gill .. .. do do		350 00
H. K. Smith..... do do		600 00
Travelling expenses: G. A. MacCallum, 9.53: E. Tinsley, 16.00		25 53
Deputy Warden :—		
B. B. Miller, 300.00: W. G. Armstrong, 187.50: T. Nicholls, 125.00:		
T. Maloney, 125.00		737 50
Special Services, expenses, and disbursements, enforcement of Act :—		
H. K. Smith, 353.33: F. C. Quallins, 388.90: J. A. Gill, 45.65:		
J. H. Willmott, 308.19		1,096 07
Services *re* enforcement of Act :—		
S. A. Huntington, 36.00: W. L. Haight, 5.00: Jas. Hines, 21.00:		
J. R. Gibson, 55.00: H. Graham, 72.00: E. T. Loveday, 56.00:		
J. Hazell, 30.00: C. F. Timms, 6.51: F. W. Dunn, J.P., 5.20:		
J. H. Brickwood, 80.00: Jno. Hines, 162.00: W. Grier, 122.00:		
J. P. Labrash, 22.50: J. F. Finnie, 25.00: P. V. Wood, 10.00:		
Lees & Hall, 16.50: J. Falls, 16 15: Geo. McGuire, 80.00:		
James Weir, 21.25: C. Russell, 28.50: R. Rush, 42 75:		
C. F. Butler, 21.25: F. W. Draycott, 48.00: J. F. Russell, 30.00:		
A. J. Greer, 36.00: Alex. Stewart, Sr., 60.00: D Hines, 20.00:		
Alfred Stunden, 8.75: E. J. Brooks, 25.00: E. Leavens, 30.00:		
J. Welsh, 25.00: D. McFarland, 22.50: J. H. Munro, 62 00:		
Thos. Diamond, 30.00: R. H. Menzies, 33.75: W. B. Crompton, 20.00:		1,385 61
Travelling expenses and disbursements enforcement of Act :—		
S. A. Huntington, 34.10: J. Farrer, P.M., 10.95: Jas. Hines, 28.75:		
W. Greer, 44.30: J. E. Rogers, 28.50: W. G. Armstrong, 129.56:		
W. H. Biggar, 9.75: J. R. Gibson, 35.95: W. H. Casement, 7.35:		
J. Morrison, 12.01: B. C. Hubbert, J.P., 4.50: H. Loucks, 5.11:		
E. T. Loveday, 79.71: J. Hazell, 1.50: J. H. Brickwood, 9 00:		
J. W. Gibson, 4.65: Jno. Hines, 45.90: J. P. Labrash, 39.75:		
P. V. Wood, 9.20: Jas. Weir, 20 00: C. Russell, 29.65:		
N. Stromberg, 42.75: R. Rush, 27.75: C. F. Butler, 30.50:		
F. W. Draycott, 8.00: J. F. Russell, 7.25: A. J. Greer, 10.75:		
B. B. Miller, 55.85: Alfred Stunden, 19.25: E. J. Brooks, 28.45:		
D. McFarland, 15.00: R. H. Menzies, 9.00: W. B. Crompton, 22.60:		867 34
J. R. Medcalf: Law costs, Stewart v. Smith		55 96
W. Hood: Verdict of Hood v. Willmott, 300.00: taxed costs, 339.60		639 60
Kerr, Davidson & Co: Legal services, re Hood v. Willmott		89 72
W. Hood: Verdict and costs Hood v. Taylor		331 27
Kerr, Davidson & Co: Legal services, Hood v. Taylor		48 54
O. M. Arnold: Interest on judgment, Hood v. Willmott		24 00
Rolph, Smith & Co: Stamping, 2.00: Riordon Paper Mills: Paper, 35.04		37 04
Warwick, Bros. & Rutter: Ptg and staty, 276.01: W. McMaster: Postage stamps, 181.00.		457 01
L. K. Cameron: Paper, 98.20: stationery, 31.00		129 20
G.N.W. Tel. Co: Telegrams, 23.33: C.P.R. Tel. Co: Telegrams, 9.11		32 44
Can. Express Co: Charges, 9.07: Dom Express Co: Charges, 9.10		18 17
Can Transfer Co: Charges, 1.25: Toronto Ry Co: Car tickets, 12.00		13 25
L. Loughrin: To pay for dressing and drying moose head		2 00
Subscriptions: *American Field*, 12.00: Int. Railway Guide, 3.00: *Forest and Stream*, 32.00.		47 00

DESTRUCTION OF WOLVES ($2,475.00.)

R. Rogerson, 15.00:	D. Turpie, 15.00:	A. Cauntin, 15.00:
C. Foster, 30.00:	T. Spearman, 15.00:	M. Foy, 15.00:
R. Tribe, 15 00:	D. Pilon, 15.00:	T. Still, 15.00:
W. F. Porter, 60,00:	C. Magnusson, 15.00:	W. H. Otto, 60.00:
J. Pacaud, 15.00:	C. E. Brewer, 15.00:	Mi-ge-en-cat, 15.00:
A. Powis, 15.00:	E. Austin, 15.00.	W. Waba, 15.00:

MISCELLANEOUS.—*Continued.*

DESTRUCTION OF WOLVES.—*Continued.*

X. LaValley, 15 00: F. Haskin, 30.00: W. Bates, 135.00:
F. P. Leuschner, 15.00. W. Hill, 15.00: N. Tonatis, 15 00:
Mi-cen-batis, 30.00. A. E. Reid, 30.00: F. Mistekegack, 15.00:
G. Watts, 15.00: R. Harrison, 30.00: J. Oshemekit, 15.00:
N. McLeod, 15 00: T. Scott, 10.00: Awonegezhic, 15 00:
W. Canntin, 15.00: G. Godda, 75.00: M. Laud, 45.00:
Miss-sel-cat, 30.00: F. Dail, 15.00: W. D M. Bell, 15.00:
P. Missake, 15.00: E. B. Weart, 60 00: K. McDonald, 15,00:
N. Brunsell, 75.00: J Robertson, 60.00: Memeguis, 15.00:
T. Grawbarger, 30.00: H. H. Clarke, 60.00 P. Kewagius, 15.00:
M. J. Salgutchawakeyhik, 15.00: W. F. Busch, 15.00: D. Janason, 15.00:
J. Weesakus, 15.00 F. Layman, 15 00: J. Racioot, 15.00:
J. Muskinoot, 30 00: J. Kabote, 15.00: R. Peever, 15.00:
S. Chicken, 15.00: N. Bogart, 15.00: Necanegaboo, 30.00:
A. Mason, 15.00: A. McConnell, 30.00: D. McLaren, 15.00:
E. Martin, 15.00: J. H. Bottrell, 30.00: J. Weeseganse, 15.00:
W. Purll, 15.00: A. Riddle, 15.00: S. Isaac, 30 00:
A. Commandant, 15.00. G. A. Phillips, 15.00: F. Stobo, 15.00:
W. Strong, 30.00: Wolverine, 30.00: C. de Laronde; 30.00:
D. Martin, 15.00: J. Sawyers, 30.00: W. Stephens, 60.00:
W. Ferguson, 30.00: G. McIntyre, 15.00: W. Laud, 15.00:
M. Mesindugujuck, 15.00: J. Egwine, 30.00: E. Norman, 15.00:
W. Boudrie, 15.00: P. Missabe, 15.00: M. Penasse, 15.00:
Kaizheahnemuck, 15.00: M. McLeod, 15.00: Penece, 15.00:
A. Stephens, 45.00: E. Twine, 15.00: S. Waters, 15 00:
B. McLeod, 15.00: R. Balfour, 15.00: J. Longoa, 15.00:
P. Sheriden, 15.00: Mi-ean-twine, 15.00: Treas. Co. Renfrew for J. Jackman, 8.00:
Treas. Co. Refrew for W. McSourley, 6.00: Treas Co. Hastings for A. Finlayson, 6 00:
do D. Kilgore, 8 00: do A. Wannamaker, 6.00:
do H. S. Teepell, 6.00: do P. Sheriden, 6.00:
do A. Maves, 6.00: do P. Fraser, 6 00:
do P. O'Brien, 6.00: do A. A. Armstrong, 30.00.
do J. Ami, 6.00 Treas. Co. Peterboro for D. Wood, 6.00:
do P. H. T. Lassman, 6.00: Treas. Co. Simcoe for R. Boyd, 6 00:
do M. J. Helmer, 12.00: do B. A. Ousang, 18.00:
do G. Eno, 6.00. Treas. Co North'd&Durham for J.M.Murray, 6.00:
do F. Layman, 12.00 .....

COLONIZATION PURPOSES, PAMPHLETS AND ADVERTISING. ($7,582 09).

Services as guide to intending settlers :—
N. McFayden, 16.00 ; R. Moffat, 88.00 ; J. Nolan, 32.00 ; G. Hughes, 53.00 ;
D. Atkinson, 44.00 ; J. Martin, 84.00 ; J. Delaney, 4.00 ; R. S. Robinson, 6.00 ;
J. Gillies, 14.00 ; Alex. Brown. jr., 50.00 ; J. R. Babcock, 9.00 ; R. H. Wickham, 4.00 ;
R. J. Hancock, 84 00 ; E. Roach, 6.00 ; R. Emerson, 32.00 ; W. W. Shinkle, 12 00 ;
A. G. C. Smith, 5.50 ; C. McNaughton, 12.00 ; D Clark, 5.00 ; M. Free, 46.00 ;
T. A. Hill, 86.00 ; J. Mitchell, 63.00 ; T. Wall, 16 00 ; C. Newton, 54.00 ;
G. Roach, 44.00 ; J. Levens, 4.00 ; J. Edmond, 6.00 ; T. Gregory, 2.00 ;
D. Foley, 30.00 ; W. J. Stephenson, 6.00 ; E. Free, 22.00 ; J. McChesney, 10.00 ;
T. Heaslip, 13.00 ; R. A. Winneby, 5 00 ; J. Irving, 26,00 ; S. McChesney, 2.00 ;
J. Clement, 6.00 ; A. Watson, 24.00 ; F. Draper, 30.00 ; J. Wells, 10.00 ;
C. Fleming, 3.00 ; J. Stewart, 84.00 ; R Skene, 3 00 ; A. J. Gardiner, 2.00 ;
J. Bucke, 37.00 ; W. Madill, 13.00 ; H. Thomas, 2.00 ; F. Garniss, 8.00 ; E. Litch, 8 00 ;
Hugh Jack, 8 00..... $1 233 50
Sundry newspapers and periodicals, advertising New Ontario, 1,475.77 ; extra copies, 510 00 1,985 77
Steinberger, Hendry Co , maps of Ontario, 423.50 ; Copp, Clark Co, maps of Ontario, 371.00 793 50
F. Smiley, Can. summer resort guides, 210.00 ; d'Imperial Generalé pamphlets, 319.00 ..... 529 00
Riordon Paper Mills, paper, 294.01 : Warwick Bros. & Rutter, mounting maps, 38.40..... 332 41
Warwick Bros. & Rutter: Print'g and bind'g, 218 26 ; printing and bind'ng pamphlets, 344.81 563 07
Temiscamingue Gazette: Printing posters, 6.00 ; L. K. Cameron: Paper, 1.02 ..... 7 02
Unwin, Murphy & Eston: Coloring and lettering plan, 184 00 ; Elliott, Son & Co: Mounting and executing map, 25.60 ..... 209 60
Photos for report, Murray & Son, 3.00 ; A. McLellan, 9.75 ; J. G. Banks, 3 00 ;
A. W. Pringle, 3.00. ..... 18 75
A. J. Reading Lantern slides, 8.50 ; McKenzie & Co: Frames, 7.00 ..... 15 50
Exhibitions, Toronto, London, etc.:—
T. Eaton Co: Flags, carpets, etc., 36 37 ; Aikenhead Hardware: Hardware, 8 27..... 44 64
Wells & Emmerson: Hardware, 1.25 ; J. J. O'Hearn: Painting, etc, 31.45 ..... 32 70
A. Macpherson: Plumbing, 26 95 ; R. Bradley: Carpentering, 13.50..... 40 45
T. Stoneham: Carpentering, 13.50 ; Jas. Roberton: Services, 40.00..... 53 50
Jas. Roberton: Travelling expenses and disbursements, 39.60 ; A. Thompson, services as assistant, 3.50 ..... 43 10
Services as assistant: D. Kennedy 10.10 ; J. McCracken, 10.10 ; J. Westley, 10.10 ;
W. B. Dockrill, 15.25 ; A. Bridgen, 39.30..... 84 85

MISCELLANEOUS.—*Continued.*

COLONIZATION PURPOSES, PAMPHLETS AND ADVERTISING.—*Continued.*

J. Armstrong: Packing, cartage, etc., 10.25 ; Vigers & Co: Lumber, etc., 12.60	$22 85
W. G. Armstrong: Trav. expenses, 33.95 ; T. E. Armstrong: Trav. expenses, 37.30	71 25
R. A. Burriss Board, travelling expenses and disbursements	85 45
Cartage: W. Wright, 34 75 ; D. W. Wright, 5.75 ; W. Newport, 2.50 ; James Davidson, 3.00 ; F. Perry, 3.00	49 00
G. T. Railway Co: Freight charges, 9 00 ; C. P. Railway Co. 7.63	16 63
Port Arthur *Chronicle* Printing and stationery, 6.75 ; Postmaster: Postage stamps, 5.00	11 75
Sundry newspapers: Advertising, 57.40 ; F. A. Metcalf: Lettering signs, etc, 27.04	84.44
W. Bogart: Photos New Ontario, 17.00 ; Siche Gas Co: Globes and burners, 85c	17 85
Grains, grasses, etc: R. McKenzie, 38.00 ; J. D. McKenzie, 49.00 ; W. Wilson, 2.00 ; W. M. Martin, 10.00 ; N. Phelps, 10 00 : R. B. Martin, 5.00 ; R. Watson, 5.00 ; F. Merrick, 10.00 ; W Reer, 10 00 ; J. Tonkin, 5.00 ; F. Perry, 8.20 ; A. J. Hunter, 2.00: D. Gillespie, 10.00; J. W. Robertson, 2.00; J. J. Walsh, 10.00 ; M. Gonch, 10 00	186 20
Immigration :—	
Carriage of immigrants: G. T. Railway Co, 105.54 ; C. P. Railway Co, 48.45 ; D. Spence, to pay fares, 1 70 ; J. Duggan, cartage, 16.75 ; D. Davies: Meals and lod'gs, 139.45; W.J. Schuigler: Board German immig'nts, 3 00 ; C. C. Meyer: Trav. expenses, 30.00	344 89
Freight Shed, New Liskeard :—	
P. H. Laird: Wages at 3.00 per day, 15.00 ; J. Cook: Wages at 1.75 per day, 8.75 ; J. Munshaw do 1.75 do 8.75 ; G. Taylor do 1.50 do 7.50 ; J. Connolly do 1.50 do 6.00 ; P. H. Laird, timber, 13.56 ; Taylor Bros: Hardware, 9.11 ; McCammon & McKelvie : Lumber, 78.74 ; S. W. Hammond: Painting sign, 3.00 ; R. Latimer: Cleaning, 14.75	165 16
J. A. Lacochelle: Fitting up barge Temiscamingue	300 00
Dom. Express Co: Charges, 80.10 ; Can. Express Co: Charges, 21.10	101 20
Lumsden Steamboat Line: Freight charges, 71.50 ; C.P.Ry. Co: Freight charges, 6.25	77 75
Can. Transfer Co: Cartage, 1.50 : C. P. R. Co. Telegraph: Telegrams, 34.17	35 67
A. B. Wetherup: Supplies, 17.41 ; W. J. Flewwelling, supplies, 7.23	24 64

ALGONQUIN NATIONAL PARK. ($7.572.27).

T. W. Gibson, services as Secretary of Parks	150 00
G. W. Bartlett, Superintendent, 12 mos., 799.92 ; T. O'Leary, Chief Ranger, 12 mos., 600.00 ; S. W. Waters, Ranger do 499.92 ; D. A. Ross, Ranger do 499 92 ; J. Sawyer do do 499.92 ; R. Balfour do do 499.92 ; G. Godda do do 499.92 ; D. Cadenhead do do 499.92 ; J. O'Gorman do do 499 92 ; W. Thompson do do 499.92 ; D. M. Bell do do 499.92 : Jno Malone, cook, 8 months, 240.00 :	
M. B. Cox, housekeeper, 4 months, 120 00	6,259 20
W. L. Haight: Legal services, etc , Queen v. Bengoyne	22 00
Trav. expenses and disbursements: G. W. Bartlett, 182.86 ; T. O'Leary, 15.10	197 96
T. W. Gibson: Trav. expenses, self and Commissioner	29 55
J. H. McKenzie: Strychnine, 13.63 ; T. Manion, coal oil, 4 50	18.13
E. C. Armand: Seed, etc, 31.41 ; D. Craig: Wheat and oats, 9.06	40.47
Rankin & Beverige: Supplies, 17.90 ; S. Ryan: Hay, 10.00	27 90
T. Martin: Soap, 5.06 ; Queen City Oil Co: Oil, etc, 7.59	22 65
Jno. Macdonald & Co: Blankets, 30.80 ; C. P. Industries: Blankets, 27.12	57.92
J. R. Booth: Lumber, hardware, etc, 47.80 ; Gilmour & Co: Lumber, etc, 43.99	91 79
Sheppard Lumber Co: Lumber, 55.10 S. R. Rudd: Lumber, etc, 8 43	63 53
P. Cohen: Boxes, frames, etc, 71.30 ; J. P. & F. W. Edmonds: Hardware, paints, etc, 4.25	75 55
Rice Lewis & Son: Compass and tape line, 8.84; Johnstone Bros: Paints, oil, glass, etc, 57.40	66 24
McClary Mfg. Co: Range, 8.00 ; freight charges, 89c.	8 89
Devine & McGarry: Stove, wire, etc, 75.19 ; Gurney Foundry Co: Castings, 1.64	76 83
T. L. Main: Hides for snow shoes, 14.55 ; Ottawa Fire Proof Supply Co: Cement, 2.90	17 45
J. Gillies: Painting, 21.15 ; Day Bros: Canoes (5) 144.00	165 15
N. E. Counier: Cariboo (2) 75.00 ; crating, etc, 7.00	82 00
L. K. Cameron: Paper, 2.03 ; stat'ry, 13.65 ; North Bay *Times*: Stationery and prntg, 2.65	18 33
Warwick Bros. & Rutter: Printing, etc, 9.95 ; C.P.R. Cos. Telegraph: Telegrams, 3.18	13 13
Can. Express Co: Charges, 4.10 ; Can. Atlantic Ry: Freight charges, 4 60	8 70
Ottawa, Arnprior & Parry Sound Ry: Freight charges, 92c ; G,T. Ry. Co: Fgt charges, 4.28	5 20
London & Lancashire Fire Insurance Co: Premium on Supt's. and Rangers' dwellings	53 70

RONDEAU PROVINCIAL PARK. ($4,796.45).

Isaac Gardiner: Ranger, 11 months', 412.50: H. Gardiner: Assistant, 11 months', 297.88:	710 38
Pay lists: Wages, laborers, etc	130 95
Building roads:—Jas Gosnell, foreman, at 3.00 per day, 297.00: Pay lists, wages men, 2,628.13: Mark Davis: Gravel, 62.73: A. Glenore: Axle grease, 25c: W. McMaster: Tape line, 75c: J. R. Smith: Pails, etc, 65c: A. Ferguson. Hire of plow, 4.00: W. N. Parker: Repairs to tools, 20c: W. D. Sterling: Hire of horse, 1.00: John Green: Hire of plow, 70c: B. W. Wilson: Hire of grader, 5.00: W. H. Cornwall: Hire of road scraper, 1.00: J. S. Foster: Hire of road grader, 9.00: J. Gosnell: To pay stationery and telegrams, 1.45	3,011 86
Waterloo Mutual Fire Insurance Co: Premium on insurance, driving shed.	1 80
H. L. Merritt: Building driving shed, 407.00: painting pavilion, verandah, etc, 86.00	493 00

MISCELLANEOUS.—*Continued.*

RONDEAU PROVINCIAL PARK.—*Continued.*

Can. Flour Mills Co: Bran, corn, barley, etc, 61.43: Watt Bros. & Co: Bran, oats, &c, 58.27	$119 70
Watt Bros. & Co: Seeds, 18.06: G. Carter: Corn and wheat, 25.18	43 24
G. Fisher: Oats, 4.12. J. Taylor: Oats, 15.00: Geo. Higgs: Oats, 15.00	34 12
Darch & Hunter: Feed, 5.30: J. McLaren: Corn, 19.80: T. Craig: Salt, 3.50	28 60
L. Bennett: Hay, 27.96: G. Stephens: Hay, 24.00: W. Sterling: hay, 7.00	58 96
S. Cattle: Harness, etc, 8.85: Jno. MacGregor: Fly nets, 3.25	12 10
Geo. Ertel & Co: Supplies for incubator, 1.00: J. R. Smith: Oil, etc, 3.15	4 15
P. Bawden: Sulphur, etc, 1.25: W. B. Graham: Medicine, 1.00	2 25
Jno. Leckie: Sail for boat, 9.00. A. Delmage: Mower, 25.00	34 00
W. A. Doyle: Six pair prairie chickens, 24.00: J. C. Nation: Postage stamps, 2.00	26 00
L. Hancock: Postage stamps, 1.00: L. K. Cameron: Stationery, 3.25	4 25
Ridgetown *Plaindealer*: Printing and stationery, 7.50: Bell Telephone Co: Messages, 2.05	9 55
Lake Erie & Detroit R'y Co: Freight charges, 76c: C. P. R. Co's Telegraph: Telegrams, 84c	1 60
Dom. Express Co: Charges, 10.25: Can. Express Co, 85c	11 10
J. R. Smith: Livery hire, 2.00: Jno. Green: Teaming 3.50	5 50
Travelling expenses: Isaac Gardiner, 14.20: T. W. Gibson, 30.19: Henry Smith, 5.95	50 34
The Dominion: Advertising	3 00

FISHERIES. ($35,514.44).

S. T. Bastedo	Twelve months' salary as Deputy Commissioner		2,000 00
J. S. Webster	do	Officer	1,400 00
H. G. Cox	do	Clerk	800 00
W. W. Ellis	do	do	850 00
A. B. Wallace	do	do and Stenographer	450 00
Jas. J. Mulligan	do	do	400 00

Services and travelling expenses as Overseer :—

Addington County	P. J. Wensley	Salary	$25 00	Expenses	$2 85
	M. H. VanLuven	do	25 00	do	3 00
Algoma	R. Van Norman	do	250 00	do	117 94
Brant	A. B. Messecar	do	40 00	do	8 55
	Hy. Johnston	do	150 00	do	15 68
Bruce	Jas. Stephens	do	100 00	do	69 75
	Neil Stewart	do	100 00	do	27 75
	M. McAuley	do	100 00	do	74 70
	B. B. Miller	do	375 00	do	78 85
	do arrears, 1901	do	62 50	do	
	A. Waddell	do	100 00	do	74 98
Carleton	E. T. Loveday	do	75 00	do	96 90
Carleton and Lanark	W. J. Welsh	do	40 00	do	
Dufferin	A. Hughson	do	40 00	do	3 50
Durham	Frank Worden	do	25 00	do	
Durham and Northumberland	S. Freeman	do	75 00	do	5 82
Elgin	C. W. Wannacott	do	110 53	do	72 20
Essex	Peter Lamarsh	do	487 50	do	79 04
	J. B. Cousineau	do	150 00	do	33 32
Frontenac	Wm. Craig	do	100 00	do	84 35
	Geo. Clyde	do	100 00	do	205 52
	W. J. Donaldson	do	25 00	do	10 39
	Robt. Flynn	do	25 00	do	51 64
Grey	Jas. Meyers	do	40 00	do	16 60
	Patrick Howard	do	150 00	do	36 82
Georgian Bay	Wm. Pratt	do	500 00	do	114 10
Haldimand	Jno. Farrell	do	100 00	do	61 55
	Arch. Cowper	do	150 00	do	12 83
Haliburton	Jas. Massales	do	75 00	do	5 50
Halton	Wm. Sargent	do	100 00	do	
Howe Island	Jno. Driscoll	do	75 00	do	15 60
Huron	Jas. Yates	do	150 00	do	1 15
Kent	J. K. Laird	do	125 00	do	13 40
	J. McRitchie	do	75 00	do	14 90
	Jno. Crotty	do	75 00	do	
	J. E. Stephens	do	100 00	do	12 82
Lambton	Jas. Steed	do	150 00	do	57 78
	Orlando Allen	do	150 00	do	186 93
Lanark	David Mair	do	40 00	do	
	T. B. Norris	do	40 00	do	6 50
	Wm. Gardiner	do	25 00	do	
Leeds	F. Williams	do	50 00	do	22 00
	O. V. Goulette	do	75 00	do	30 58
	Jno. R. Gibson	do	50 00	do	77 41
	J. B. Smith	do	75 00	do	18 00
	A. E. Sliter	do	12 50	do	15 15
	Geo. Bilton	do	50 00	do	1 61
	A. J. Flood	do	17 55	do	50
	C. O'Connor	do	17 55	do	17 40

MISCELLANEOUS.—*Continued.*

FISHERIES.—*Con.*

Leeds and Grenville	Hy. Mathen	Salary	$400 00	Expenses	$37 90	
Leeds and Frontenac	J. C. Judd	do	600 00	do	155 70	
	A. E. Stevens		.....	do	7 45	
Lennox	Wm. D. Roblin	do	100 00	do	30 95	
	Jas. D. Rennie	do	100 00			
Lincoln	Robt. Hadgraft	do	100 00	do	25 99	
Manitoulin Island	Richard Oliver	do	250 00	do	423 73	
	S. R. McKewen	do	50 00			
	Thos. Norquay	do	35 00			
Middlesex	J. W. Gibson	do	25 00	do	1 50	
	R. E. Jury	do	50 00			
	F. McVean	do	547 50	do	99 25	
	do arrears 1901	do	46 50			
Michipicoten Island	H. Daveneau	do	25 00			
Muskoka	J. F. Brown	do	50 00	do	20 25	
	J. H. Wilmott	do	50 00			
	H. Moore	do	50 00			
Muskoka and Parry Sound	Wm. Smith	do	100 00	do	14 75	
Nepigon River	C. de Laronde	do	196 00			
Nipissing	Jno. Armstrong	do	50 00			
	S. A. Huntington	do	100 00			
	H. W. Legault	do	100 00	do	51 55	
	M. Mullin	do	25 00	do	3 75	
Norfolk	Geo. D. McColl	do	250 00	do	80 15	
Northumberland	F. Johnstone	do	75 00	do	6 45	
	L Cock	do	50 00	do	15 31	
	Alex. Skeene	do	75 00	do	23 00	
Ontario	Jno. Steele	do	75 00	do	182 70	
	J. Bowerman	do	75 00	do	14 25	
	Jas. M. Willis	do	50 00	do	24 45	
	Jos. Gerow	do	75 00	do	3 75	
Ontario and Victoria	M. Thwaite	do	600 00	do	136 56	
Parry Sound	R. Menzies	do	75 00			
	J. Paul	do	75 00	do	18 25	
	J. A. Johnston	do	200 00			
Parry Sound and Nipissing	Geo. M Bailey	do	25 00	do	22 91	
Peel	R. J. Walker	do	50 00	do	1 34	
	A. A. Clunis	do	50 00	do	7 10	
Peterboro	Jno Brown	do	100 00	do	9 71	
	P. W. C. Shewen	do	25 00			
	F. G. Moore	do	100 00	do	66 85	
	Thos. Nicolls	do	100 00	do	20 00	
	Jos. Yellands	do	200 00	do	61 84	
	Arch. MacIntyre	do	50 00	do	38 60	
	Jno. Dickson	do	25 00	do	5 10	
Pelee Island	Wm. Stewart	do	100 00	do	12 69	
Prescott	J. P. Villeneuve	do	100 00	do	7 79	
	Isaac Blondin	do	50 00	do	48	
Prince Edward	M. Clark	do	200 00	do	234 50	
Prince Edward and Hastings	J. K. McCargar	do	600 00	do	256 87	
Rainy River	Alex. Guerard	do	200 00	do	43 85	
	Jno. Perry	do	50 00	do	3 50	
	Jno. Nash	do	300 00	do	5 50	
Renfrew	Hy. Barr	do	400 00	do	46 15	
	Chas. Taylor	do	50 00	do	66 55	
Simcoe	Felix Labatt	do	50 00			
	D. McNabb	do	75 00	do	212 30	
	T. Payette	do	50 00	do	4 50	
	D. A. McNiven	do	75 00	do	45 65	
Thunder Bay	Wm. McKirdy	do	137 50			
	Jas. Whalen	do	50 00			
	Alex. McComber	do	375 00	do	49 60	
Victoria	N. Brady	do	75 00	do	141 48	
	J. R. Graham	do	75 00	do	2 05	
	Alex. Trotter	do	25 00			
Welland	Jos. Ellis	do	75 00	do	2 19	
Wellington	C. Robertson	do	25 00			
Wentworth	Chas. Ogg	do	100 00	do	41 15	
Wolfe Island	D. Cattenach	do	100 00	do	17 43	
York	F. Terry	do	100 00	do	35 15	
	W. R. Wood	do	150 00	do	67 45	
	Ed. Charpontier	do	25 00	do	17 05	$18,891 46

MISCELLANEOUS.—*Continued.*

FISHERIES.—*Continued.*

Services as Special Guardian:—
E. J. Gouldie: Lake of Bays, 20.00: A. Leatherdale: Severn River, 39.00:
H. Graham: Lake Simcoe, 97.50: J. MacIntaggart: Lake Simcoe, 67.50:
H. Charpontier: do 51.00: C. H. Austen: do 108.00:
A. R. McKay: do 97.50: J. H. Rout: do 96.00:
L. Leatherdale: do 42.00 J. C. Bates: Stoney Lake, 12.00:
C. Butcher: Otonabee River and Rice Lake, 102.00:
J. W. Wedlock: do do 72.00:
T. Henderson: Pigeon Creek, 31.50: T. Wallace: Rice Lake, 60.00:
Amos. Shearer: Rice Lake, 117.50:
W. N. Simpson: Gull R. and Balsam L. (1901), 20.00:
H. C. Bowen: Lake Scugog, 88.75: A. Hanon, Lake Scugog, 43.75:
R. Turner: Clear Lake, 20.00: C. Robertson: Twp. Aaron and Garafraxa, 25.00:
T. McCutcheon: Toronto Bay, 27.00: John Seager: Toronto Bay, 30.00:
S. Perdue: Pigeon Lake, 50.00: D. M. Smith: Sydenham River, 25.00:
J. W. Hamilton: Kettlepoint, 25.00:
R. Cosgrove: Chemong and Buckhorn Lake, 8.00 ..... $1,375 60

Travelling Expenses:—
T. McCutcheon, 6.45: John Seager, 31.90: H. C. Bowen, 10.60..... 48 95

D. McNab: Boat hire for use of guardian 8 00

Special services *re* enforcement of Act:—
J. Russell, 15.79: L. Davis, 1.70: N. Mattice, 1.70: W. A. D. Lees, 7.00:
D. McFarlane, 4.00: Geo. Clyde, 8.06: Freeman Britton, 6.95:
J. Deacon, 28 42: H. O'Leary, 43.15: H. L. Ebbels, 7.00:
John Notts, 17.75: J. L. Whiting, 57.18: Macbeth & Macpherson, 35.15:
Lees & Hall, 48.50: J. H. Brickwood, 28.00 ..... 310 35

Steamer Gilphie:—
A. McAuley: Services as Captain at 65.00 per month, 577.34:

Geo. Martin:	do	Engineer	45.00	do	399.69:
S. Richmond:	do	Wheelman	35.00	do	308.62:
C. Knight:	do	do	35.00	do	176.39:
C. Webster:	do	Fireman	29.00	do	203.87:
Jno. Dion	do	Cook	30.00	do	123.87:
Wm. Geddes:	do	do	30.00	do	23.00:
Otto Gorbeau	do	do			54.50:
Irwin Armstrong:	do	do			52.74:

D. S. Pratt: 71 tons, 1,100 lbs. coal, 416.33: 40 sacks coal, 4.00: 1 cord wood, 3.25:
W. H. Smith & Co: 16 tons 30 lbs. coal, 91.75:
Noble Bros. Co: 2 tons 750 lbs coal at 4.50, 12.93:
C. Beck Mfg. Co: 12 tons coal at 6.50 per ton, 78.00:
9 tons 1,600 lbs. coal at 7.00 per ton, 66.15:
Abbey Bros: Lumber, hardware, etc., 42.83: 2 pairs oars, 5.50:
G. W. Wright: Paints, oils and hardware, 61.85:
R. B. Butchart: Oil, packing, etc., 27.24:
Supplies and furnishings:—
Allan J. Ross, 75.18: H. R. Manders & Co., 36.50: Owen Sound Iron Co., 42 80:
J. Harrison & Sons Co., 3.00: R. L. Adolph, 1.30: T. W. Hough, 2.00:
A. Tesser, .75 Estate W. Beatty, 6.29: A. N. Fenn, 2.75:
T. J. Thompson, .80:
K. McIver: Washing bedding, 8.75: Mrs. Dault: Washing bedding, 3.20:
Mrs. Ferris: do 11 63:
J. Jamieson: Uniforms for officers and crew, 91.00:
A. McAulay: To pay board of crew, 628.41: sundry disbursements, 9.65:
Travelling expenses:—
A. McAuley, 3.00: Geo. Martin, 3.00: S. Richmond, 10.00:
C. Webster, 3.00: Irwin Armstrong, 6.50:
Scottish Union Mutual Ins. Co: Premium on insurance, 62.50 ..... 3,741 86

Steamer Eva Belle:—
A. E. Stevens: Services as Pilot at 1.50 per day, 304.50:
Philip Wing: do Engineer 1.25 do 232.50:
Wood supplied:—
C. Virtue, 5.25: E. Smith, 6.56: W. Ryan, 6.00: T. S. Harrison, 3.75:
R. Joint, 5.06: McNally Bros., 10.50: J. & L. Coon, 3.60:
C. Card, 13 50: J. H. Gould, 4.00: F. Hourigan, 2.00:
Thos. Kane, 4.50: A. Gallagher, 3.25: J. H. Ferguson, 3.00:
J. L. McEwen: Coal, 2.46: J. Coon: Pike pole, etc., 1.38:
Scott & Hogan: Hardware, oil, etc., 10.04: Davis & Co: Castings, 1.60:
S. T. Barr: Castings, 1.55: D. Foley: Supplies,, 8.34:
A. E. Stevens: To pay for supplies, 4.35:
H. A. Derbyshire: Hauling out steamer, 4.25:
British America Assurance Co: Premium on insurance, 16.00..... 657 94

Sail Boat Gladys:—
John Weeks: Assisting overseer Pratt, 233.00: J. Leckie: Sail, 10.00 ..... 243 00

Expenditure Fish Car:—
McColl & Mason: Ice, 8.00: McGee, Walton Ice Co: Ice, 11.00:
G. T. Railway: Use of fish car and ice 12.00 ..... 31 00

MISCELLANEOUS.—*Continued.*

FISHERIES.—*Continued.*

W. McKirdy: Speckled trout for stocking lakes, 44.00: fish nets, 12.00: anchor and lines, 5.55: provisions, 12.50: rent of tent, 4.00: postage, 1.00: disbursements, 7.50	$ 86 55
Wanagus: Netting pike, 63 days, 94.50: Wassigisie: Netting pike, 1½ months, 7.50	102 00
A. White: Supplying bass fry, 200.00. work on dam, 12.75	212 75
J. Tanton & Son: Food for fish	2 40
S. T. Bastedo: To pay for 2 marine glasses for overseers, Rice Lake and Georgian Bay	11 50
W. H. Nichol: Sailboat for overseer Laird	100 00
John Whaley: Boat house for overseers Skeene and Johnstone	20 00
Thomas Simpson: Removing dam on Thames River at Cashmere	30 00
E. Lumley: do do do	30 00
M. J. Mulligan: Compensation *re* fishing license	150 00
James Dear: Specimens of fish, .50: Julian Sale Leather Goods Co: Travelling bag, 5.00.	5 50
Gretta Brown: Services as extra clerk at 2.00 per day	56 00
Can. Legal Pub. Co: Law list, 2.00: Circuit Guide Pub. Co: Copies guide, 2.00	4 00
Toronto Railway Guide: Subscription, 5.00: Might Directories: Directory, 5.00	10 00
R. H. Russell: Book, 3.50: A. Britnell: Book, 3.00: C. Gripton: Rubber stamp, 7.50.	14 00
Warwick Bros. & Rutter. Printing and binding	250 90
Rolph Smith & Co: Stamping, 12.12: Riordon Paper Mills: Paper, 82.57	94 69
L. K. Cameron: Paper, 54.45: stationery, 251.56: W. McMaster: Postage stamps, 250.00.	566 01
Toronto Railway Co: Car tickets, 20 00: G. N. W. Telegraph Co: Telegrams, 33.30	53 30
C. P. R. Telegraph Co: Telegrams, 51.24: Bell Telephone Co: Messages, 15.55	66 79
Dominion Express Co: Charges, 5.32: Can. Express Co: Charges, 3.90	9 22
Can. Tranfer Co: Cartage, 1.00: G. T. Railway: Freight charges, 9.99	10 99
Doane Bros: Cab hire, 10.75: S. T. Bastedo: Travelling expenses, 105.00	115 75
J. S. Webster: Travelling expenses, 40.00: W. W. Ellis: Travelling expenses, 221.85.	261 85
N. A. Fish and Game Association: Membership fee	5 00
J. S. Webster: To pay gratuities to messengers, 6.50: petty office expenses, 5.00	11 50
Sundry newspapers: Subscriptions	25 58

STATUE TO HER LATE MAJESTY THE QUEEN ($5,383.91).

McIntosh Marble & Granite Co: Balance due on statue	5,383 91

MONUMENT TO GOVERNOR SIMCOE ($3,000.00).

Ontario Historical Society: Legislative grant	3,000 00

COMMITTEE OF HOUSE FOR ART PURPOSES ($1,176.00).

A D. Patterson: On acc't portraits, Sir Oliver Mowat, Hon. G. W. Ross, Jno. Sandfield Macdonald	657 00
J. W. L. Forster: Portrait Major-General the Hon. Æneas Shaw	250 00
C. J. Townsend & Co: Oil painting (Barucci)	100 00
do Water colour (Matthews)	35 00
F. A. T. Dunbar: Pair bronze medallions	80 00
McKenzie & Co: Engraving "Christening of Prince of Wales"	25 00
do Framing do do	16 50
do do Group provincial statesmen	12 50

MUNICIPAL AUDITOR ($2,596.21).

J. B. Laing: Municipal auditor, 12 months', 2,000.00: travelling expense, 500.00	2,500 00
Rolph, Smith & Co: Stamping, 12.50: L. K. Cameron: Stationery, 39.35	51 85
Riordon Paper Mills: Paper, 2.11: Warwick Bro's & Rutter: Printing, 4.25	6 36
Mrs. Hubertus: Postage stamps, 10 00: Simcoe *Reformer*: Advertising, 6.75	16 75
T. G. Williamson: Services and exp's investigating accounts Trustees S.S. 3. Tp. Franklin	21 25

COMPILATION IMPERIAL STATUTES ($3,515.46).

Hon. Sir J. A. Boyd: Services on Committee	500 00
Hon. Sir W. R. Meredith: do	500 00
Hon. Sir T. W. Taylor: do	500 00
Hon. Justice Moss: do	500 00
Hon. Justice Falconbridge: do	500 00
Geo. S. Holmested: do Secretary	1,000 00
N. R. Butcher: Typewriting, 7.26: Warwick Bro's & Rutter: Binding, 8.20	15 46

LABOR BUREAU ($3,177.03).

R. Glockling: Director, 12 mo, 1,500.00: M. I. Nolan: Stenographer, 12 mo, 450.00	1,950 00
P. Dawkes: Stenographer, at 2.00 per day, 36.00: *Grip* Printing Co: Die, 50c	36 50
Warwick Bro's & Rutter: Printing and binding, 210.29: L. K. Cameron: Paper, 14.30	224 59
L. K. Cameron: Stationery, 55.21: Riordon Paper Mills: Paper, 268.43	323 64
Mrs. Hubertus: Postage stamps, 50.00: C. Gripton: Rubber stamps, 10.00	60 00

MISCELLANEOUS.—*Continued.*

LABOR BUREAU.—*Continued.*

Creelman Bros: Duplicator, 10.00: supplies, 20.00 ..... $ 30 00
Remington Typewriter Co: Rep'g typewriter, 20 10: G. J. Castle: Copyholder, 3.50 ..... 23 60
Might Directories: Directory, 5.00: Can. Legal & Pub'g Co: Law list, 2 00 ..... 7 00
Bryan & Beddingfield: Commercial directory, 1.00: G.N.W. Tel. Co: Telegram, 25c.. ..... 1 25
Toronto Railway Co: Car tickets, 10.00: R. Glockling: Travelling expenses, 299.30.... ..... 309 30
National Labour Assn: Dues and copies of proceedings 8 00
Subscriptions: *Globe* Printing Co, 5.00: *Citizen and Country*, 75c 5 75
Advertising Labour Day souvenir, 10 00: London Labor Directory, 5.00:
Allied Trades & Labor Ass'n. 20.00: *Social Progress*, 20.00: *Industrial Banner*, 15.00:
Trade & Labor Congress, 40 00: *The Toiler*, 62.40: Labor Directory, 5.00:
Hamilton Trades & Labor Council, 5.00: *Canadian Socialist*, 10.00:
Iron Moulders' Souvenir, 5.00 ..... 197 40

ASSESSMENT COMMISSION ($9,114.62).

Hon. Justice Maclennan: Balance, services as Commissioner, at 25.00 per day..... 900 00
do McMahon: do do 1,325 00
Abraham Pratt: do do 15.00 per day..... ..... 445 00
K. M. McKay: do do 1,160 00
T. H. Macpherson: do do 325 00
D. R. Wilkie: do do 175 00
Travelling expenses: Abraham Pratt, 429 20: K. M. McKay, 460.40: T. H. Macpherson, 168.75 ..... 1,058 35
T. Langton: Balance, services as Secretary, 3,000 00: Stenographer, 495.94..... 3,495 94
Riordon Paper Mills: Paper, 97.98: Warwick Bro's & Rutter: P't'g and b'd'g report, 97.20 ..... 195 18
L. K. Cameron: Stationery, 40c: D. F. Tolchard: Lunches for Commissioners, 34.75.. ..... 35 15

UNITED EMPIRE LOYALISTS ($200.00).

Treasurer, U. E. Loyalists' Association: Legislative grant 200 00

PAN-AMERICAN EXPOSITION ($1,406.50).

Mineral exhibit:—
E. Crickmore: Duty and brokerage, 1.00; C.W. Irwin: Brokerage and exp. chgs, 2.00. ..... 3 00
Herman & Co: Medal bannerettes, 30.00; Gorham Mfg Co: Medals, 37.50 ..... 67 50
P.J. Crotty: Services setting up and taking down exhibits, 50.00; Dom. Exp. Co: Chgs, 3.85 ..... 53 85
G. T. Ry. Co: Freight chgs, 15.52; F. N Speller: Fees on protested cheque, 1.33... ..... 16 85
Forestry exhibit:—
L. K. Cameron: Stationery, 6.61; Gorham Mfg Co: Medals, 17 50 ..... 24 11
J. Bidgood: Rent of specimens and damage in transit 100 00
E.B. Eddy Co: Fibreware, 12 35: J.B. Smith & Sons: Work of men unloading car, 30.25 ..... 42 60
C. P. R. Co's Tel: Telegram, 50c; W. McMaster: Postage stamps, 12.00..... 12 50
G. T. Ry Co: Freight charges, 39 00: C. P. Ry Co: Charges, 36c 39 36
Dom. Express Co: Charges, 20.45: Can. Express Co: Charges, 1 70..... 22 15
Canadian Transfer Co: Cartage 1 00
Lally Lacrosse Mfg Co: Lacrosse sticks lost during return 18 00
Fruit exhibit:—
J. J. Johnston: 12 signs for Experimental stations..... 1 80
W. M. Orr: Services, 16.00; expenses, 9.20; K. House: Services, 5.00; expenses, 1.20 ..... 31 40
W. H. Bunting: Preparing report, 11.20; expenses and disbursements, 26.42..... 37 62
W. M Orr & Son: Fruit, 16.75: Allan Bros: Office chairs, 12.50 ..... 29 25
Riordon Paper Mills: Paper, 51.18; Can Express Co: Charges, 11 40 ..... 62 58
Dairy exhibit:—
W. G. Thompson: Butter, 22.40; E. B. Elderkin: Dairy record books, 27.50..... 49 90
Compensation for use of cows—dairy contest: M. Richardson, 60.00; H. Bollert, 30.00; W. McClure, 30.00; F. H. Neill, 30.00. ..... 150 00
Poultry exhibit:—
Riordon Paper Mills: Paper, 16.18; Warwick Bros & Rutter: Ptg and binding rep, 22.55 ..... 38 73
Horticultural exhibit:—
Gorham Mfg Co: Medals, 242.50; C. W. Irwin: Brokerage and express, 2.05..... 244 55
N. L. Steiner: Allowance for expenses as Commissioner 500 00
1,546 75
Less sundry refunds, freight charges, etc, 1901 ..... 133 25
Refund, medals 7 00
140 25
1,406 50

EASTERN ONTARIO GOOD ROADS' ASSOCIATION ($200.00).

H. B. Cowan, Secretary: Legislative grant 200 00

MONUMENT TO LATE SIR GEORGE KIRKPATRICK ($500.00).

Treasurer Kirkpatrick Memorial Fund: Legislative grant 500 00

ATTORNEY-GENERAL *v.* CAMERON ($1,578.00).

Executors estate late Henry Langford—law costs 1,578 00

MISCELLANEOUS.—*Concluded.*

LIQUOR ACT VOTE ($19,995.26).

Costs of election :—

Brant, N: W. B. Wood, 270.38 ; Brockville: W. H. Cole, 377.26 ;
Elgin E: J. H. Coyne, 350.88 ; Frontenac: T. Dawson, 471.41 ;
Grey, N: R. McKnight, 597.84 ; Hamilton, E: J. T. Middleton, 379.31 ;
Hamilton, W: R. K. Hope, 375.75 ; Kent, W: J. R. Gemmill, 674.72 ;
Kent, E: P. D. McKellar, 613 77 ; Manitoulin: E. H. Jackson, 150.00 ;
Muskoka, J. E. Lount, 500.00 ; Nipissing, W: W. D. Leask, 400.00 ;
Norfolk, N: A. J. Donley, 360.95 ; Ontario, N: J. F. Paxton, 815.37 ;
Peel, N: J Hossie, 586.69 ; Prince Edward: J. Gillespie, 414.11 ;
Renfrew, N: James Smith, 401.62 ; Simcoe, C: S. Lount, 355.82 ;
Toronto, N: Fred Mowat, 791.72 ; Toronto, S: Peter Ryan, 1,165.90 ;
Toronto, W: Charles Lindsey, 892.52 ; Toronto E: J. H. Widdifield, 709.55 ;
Welland: James Smith, 524.36 ; York, E: James Massie, 416.53 ..... $12,596 36
Kilgour Bros.: Stationery supplied Returning Officers. 3,690 20
Warwick Bros & Rutter: Prtg and bndg, 2,082·95 ; Riordon Paper Mills: Paper, 177.63. 2,259 68
L. K. Cameron: Stationery, 1,168.36 ; Can Transfer Co: Cartage, 1 25 ..... 1,169 61
D. W. Wright: Cartage, 2.50 ; Can Express Co: Chgs, 97.25 ; Dom Exp Co: Chgs, 73.66 ; 173 41
Pay lists :—Services clerks mailing poll books, ballots, etc 106 00

Re SCOTT, REFERENCES TO JUDGES BY LEGISLATURE ($601.79).

Hon. Justice Osler: Account services enquiring into charges fraud 300 00
Estate late Justice Lister do do 300 00
J. R. Forsyth: To pay postage, car tickets, etc 1 79

MUNICIPAL LOAN FUND ($517.90).
(45 Vic. Cap. 27.)

Treasurer Twp. Chatham: Balance due on account interest 517 90

INCIDENTALS ($8,854.03).

Sundry Insurance Companies: Premium on insurance, Dairy Buildings, Guelph..... 239 92
do do Massey Library Building..... 285 00
do do Dairy School Building, Kingston..... 75 00
do do Central Prison Building & Workshops 338 75
do do Warden's Residence, Central Prison.. 16 50
London Guarantee and Accident Co: Premium on Fidelity Bonds 1,438 75
Dominion of Canada Guarantee Ins. Co: do 545 63
Guarantee Co. of North America: do 85 50
Employers' Liability Co: do 1,157 81
Reception Duke and Duchess of York :—
Can. General Electric Co: Supplies *re* illuminations 347 30
Aikenhead Hardware: Hardware 5 95
H. T. Gardner: Official suit for housekeeper O'Brien 40 00
Trades and Labor Disputes Act, etc :—
Advertising :—Can. Manufacturers Pub. Co., 9.00: *Social Progress*, 9.00:
Labor Directory, 2.50: Hamilton Union Labor Directory, 2.50:
The Toiler, 13.50.. *Canadian Socialist*, 4.50: Labor Day Souvenir, 5.00..... 46 00
Australian Delegation :—
Queen's Hotel: Hotel bill, 134.07: Doane Bros: Livery, 26.75 ..... 160 82
W. P. Pulling & Co: Compensation for losses sustained through closing Indian Point Bridge 231 00
Pennington & O'Brien: Cement, gas, labor *re* natural gas pipes Windsor. 76 74
J. C Iler, Sheriff: Services and disbursements *re* shutting off gas 17 06
H. Williams: Meals for delegates *re* visit Prince Henry of Germany 15 00
Jas. Keating: do do do 6 00
Wyld & Osler: Legal services *re* Queen *vs.* Niagara Falls Park..... 37 47
Warwick Bros. & Rutter: Printing and binding report..... 4 75
Riordon Paper Mills: Paper, 2 84 J. R. Forsyth. To pay postage, telegrams, etc., 4.65 7 49
Demorest & Sylvester: Services as Surveyor party No. 3, explorations..... 210 00
Treas. Local Committee Royal Society: Contribution towards expenses of Society..... 500 00
Hon. G W. Ross: Expenses to England representing Province at Coronation 2,255 06
Lieut.-Col. Irwin, C M.G: Grant South African Memorial Association..... 1,000 00
Imperial Bank: Commission retiring annuities, London, England..... 8 75
Miller & Sons: Floral tribute firemen killed at Toronto..... 20 00
H. H. Dewart: Legal services *re* Drucilla Hawkes *vs.* Attorney General..... 242 12
Clute, Macdonald & Co: do do 165 56
J. G. Colmer: Cost of maintenance Ontario commission at Imperial Institute..... 535 93
R. R. Casement. Overpayment to L. Meyer *re* bounty on ore 160 00
Æ. Irving: Legal services *re* Quebec Turnpike Trust 30 00
do do Temiskaming Railway Commission..... 100 00
Mutual Reserve Insurance Co., balance *re* premium on policy 213 75
Rolph Smith & Co: Engraving railway certificates 213 75

10,620 05
Less refund Fidelity Bonds 1,766 02

8,854 03

Total Miscellaneous..... $279,251 71

RAILWAY SUBSIDY FUND.

($126,177.11).

(Authority for payment, 40 Vict., chap. 24.)

		$ c.	$ c.
Kingston and Pembroke Railway	On account of grant in aid of line from Mississippi to Madawaska River, 28 42 miles.		
	Payment due 30th June, 1902	2,913 98	
	do 31st December, 1902	2,913 98	
			5,827 96
Erie and Huron Railway	On acccount of grant in aid of line from Rondeau to Wallaceburg, 39.74 miles.		
	Payment due 30th June, 1902		3,055 01

(Authority for payment, 52 Vict. chap. 35, and 53 Vict chap. 46.)

Port Arthur, Duluth and Western Railway	On account of grant in aid of line from Port Arthur to Western Provincial Boundary, 85.54 miles.		
	Payment due 1st January, 1902	5,596 80	
	do 1st July, 1902	5,596 80	
			11,193 60

(Authority for payment, 53 Vict. chap. 46, 56 Vict. chap. 34, 57 Vict. chap. 49, 58 Vict. chap. 36, 52 Vict. chap. 35, 59 Vict. chap. 48, and 60 Vict. chap. 40.)

Ottawa, Arnprior and Parry Sound Railway	On account of grant in aid of line from Eganville to Scotia, 146.1 miles and 3.33 miles at Depot Bay.		
	Payment due 1st January, 1902	10,221 15	
	do 1st July, 1902	10,221 15	
			20,442 30

(Authority for payment, 52 Vict. chap 35, and 53 Vict. chap. 46)

Parry Sound Colonization Railway	On account of grants in aid of line from Scotia to Depot Bay, 47.75 miles.		
	Payment due 1st January, 1902	3,340 59	
	do 1st July, 1902	3,340 59	
			6,681 18

(Authority for payment. 52 Vict chap. 35, and 56 Vict. chap. 34.)

Irondale, Bancroft and Ottawa Railway	On account of grants in aid of line from Irondale easterly, 35 miles.		
	Payment due 1st January, 1902	2,448 60	
	do 1st July, 1902	3,132 12	
			5,580 72

(Authority for payment, 58 Vict. chap. 36, and 60 Vict. chap. 40.)

Tillsonburg, Lake Erie and Pacific Railway	On account of grants in aid of line from Tillsonburg to Port Burwell, 15.846 miles, and connecting Grand Trunk and Michigan Central Railways at Tillsonburg, 3.262 miles—19.108 miles.		
	Payment due 1st January, 1902	891 19	
	do 1st July, 1902	891 19	
			1,782 38

(Authority for payment, 59 Vict. chap. 48.)

Ontario, Belmont and Northern Railway	On account of grant in aid of line extending from Junction with Central Ontario Railway, 9.57 miles.		
	Payment due 1st January, 1902	446 57	
	do 1st July, 1902	446 57	
			893 14

(Authority for payment, 60 Vict. chap. 40.)

Montreal and Ottawa Railway	On account of grant in aid of line from the Boundary line between the Provinces of Ontario and Quebec, extending westerly 50 miles.		
	Payment due 1st January, 1902	2,332 00	
	do 1st July, 1902	2,332 00	
			4,664 00

(Authority for payment, 59 Vict. chap. 48, and 61 Vict. chap. 22.)

Pembroke Southern Ry	On account of grants in aid of line from Golden Lake northerly 18½ miles.		
	Payment due 1st January, 1902	1,294 26	
	do 1st July, 1902	1,294 26	
			2,588 52

RAILWAY SUBSIDY FUND.—*Concluded.*

(Authority for payment, 57 Vict. chap. 49, 58 Vict. chap. 36, 62 Vict. chap. 23.)

Ontario and Rainy River Ry	On account of grants in aid of line extending westerly from the junction with the Port Arthur, Duluth and Western Railway, 40.32 miles.		
	Payment due 1st January, 1902	20,988 00	
	do 1st July, 1902	25,017 70	
			46,005 70

(Authority for payment, 62 Vic. chap. 23.)

Central Ontario Ry	On account of grant in aid of line from Village of Ormsby, 21 miles		
	Payment due 1st January, 1902	1,469 18	
	do 1st July, 1902	1,469 18	
			2,938 36

(Authority for payment, 61 Vict. chap. 22)

Ottawa & New York Ry. Co	International Railway Bridge		
	Payment due 1st January, 1902	816 22	
	do 1st July, 1902	816 22	
			1,632 44

(Authority for payment, 63 Vict. chap. 29.

Dominion Bridge Co.	Interprovincial Bridge.		
	Payment due 1st January, 1902	1,166 05	
	do 1st July, 1902	1,166 05	
			2,332 10

(Authority for payment, I Edw. VII, c. 22.)

Bruce Mines and Algoma Ry	Payment due 1st July, 1902	559 70

(Authority for payment, I Edw. VII, c. 22.)

Magnetewan River Railway	Cash	10,000 00
		126,177 11

ANNUITIES ($102,900.00).

Treasurer, Ontario	To pay annuity certificates due June 30th, 1902	51,450 00	
do	do December 31st, 1902	51,450 00	
			102,900 00

COMMON SCHOOL FUND ($9,193.18).

Award, see Sessional Papers No. 79, 1870-1.

Dominion Government, amount accountable by Ontario *re* Common School Lands during year ended December, 1901	9,193 18

DRAINAGE DEBENTURES. ($925.12).

(Municipal.)

(Authority for payment, 36 Vic. Cap. 3 and 37 Vic. Cap. 20.)

Treas. Township Amaranth: Debentures issued by the municipality for the construction of drainage works	925 12

TILE DRAINAGE. ($700.00).

Treas. Township Aldborough.	Debentures issued by the municipality for the construction of tile drainage works			100 00
do	Ops	do	do	200 00
do	Sombra	do	do	400 00

UNIVERSITY OF TORONTO. ($40,444.75)

(Sec. 16, Cap. 41, I Edw. VII.)

Bursar University,	Grant to department of Physics	13,875 00
do	do Chemistry	11,969 75
do	do Mineralogy and Geology	4,475 00
do	Cost of examinations	125 00
do	Interim advance	10,000 00
	Total expenditure	$4,345,003 58

No. 16.—STATEMENT OF EXPENDITURE by the Treasurer of Ontario, showing the amounts Unexpended, Overexpended and Overdrafts of Appropriations for the twelve months ended December 31st, 1902.

SERVICE.	SUB-SERVICE.	Appropriation.	Expended.	Unexpended.	Overexpended.	Overdrafts of appropriation.
		$ c.	$ c.	$ c	$ c.	$ c.
Civil Government	Lieutenant-Governor's office—salaries	2,305 00	2,305 00			
	do —expenses	1,500 00	1,597 00		97 00	97 00
	Attorney-General's office—salaries	15,400 00	15,332 54	67 46		
	do —expenses	2,400 00	2,261 90	138 10		
	Education Department—salaries	17,950 00	17,950 00			
	do —expenses	1,800 00	1,865 12		65 12	65 12
	Crown Lands Department—salaries	40,500 00	39,170 76	1,329 24		
	do —expenses	16,000 00	17,551 75		1,551 75	
	Bureau of Mines—salaries	3,650 00	3,650 00			
	do —expenses	2,900 00	2,687 37	212 63		
	Colonization and Forestry—salaries	5,100 00	4,250 00	850 00		
	do —expenses	1,600 00	1,713 47		113 47	
	Public Works—salaries	24,050 00	24,000 00	50 00		
	do —expenses	6,900 00	9,122 63		2,222 63	2,172 63
	Treasury Department—salaries	17,250 00	17,250 00			
	do —expenses	4,400 00	3,668 08	731 92		
	Provincial Auditor's office—salaries	7,725 00	7,725 00			
	do —expenses	1,400 00	1,561 03		161 03	
	Provincial Secretary—salaries	16,800 00	16,800 00			
	do —expenses	4,250 00	4,291 18		41 18	41 18
	Inspection of Public Institutions—salaries	14,650 00	14,650 00			
	do —expenses	3,350 00	3,491 52		141 52	141 52
	Audit of License and Justice Accounts—salaries	9,500 00	9,250 98	249 02		
	do —expenses	650 00	880 35		230 35	
	Registrar-General's Branch—salaries	8,300 00	8,277 64	22 36		
	do —expenses	4,400 00	3,346 74	1,053 26		
	Provincial Board of Health—salaries	5,550 00	5,550 00			
	do —expenses	2,500 00	2,417 69	82 31		
	Department of Agriculture—salaries	18,100 00	18,100 00			
	do —expenses	1,460 00	1,224 34	235 66		
	Insurance Branch—salaries	5,550 00	5,550 00			
	do —expenses	3,000 00	2,837 73	162 27		
	Neglected Children's Branch—salaries	3,500 00	3,500 00			
	do —expenses	2,600 00	2,058 86	541 14		
	Miscellaneous:					
	Official Gazette	5,000 00	3,544 69	1,455 31		
	King's Printer	3,450 00	3,520 05		70 05	
	Registry Offices	2,250 00	2,250 00			
	Special Clerk, etc.	1,800 00		1,800 00		
	Total Civil Government	289,490 00	285,203 42	8,980 68	4,694 10	

Legislation	Salaries	16,100 00	15,950 00	150 00		
	Sessional Writers, Clerks of Committees, etc	11,200 00	11,635 90		435 90	
	Postage and cost of House Post Office	1,500 00	2,434 45		934 45	
	Stationary, printing & binding & distribut'g Statutes	36,000 00	41,319 78		5,319 78	
	Library	3,000 00	3,283 44		283 44	
	Indemnity to Members	60,000 00	58,950 00	1,050 00		
	Expenses	5,300 00	7,198 03		1,898 03	
	Total Legislation	133,100 00	140,771 60	1,200 00	8,871 60	7,671 60
Administration of Justice	Supreme Court	35,725 00	35,208 61	516 39		
	Appeal Court	3,584 00	3,708 74		124 74	
	High Court	3,000 00	2,752 68	247 32		
	Central Office	15,768 00	14,791 51	976 49		
	Registrar's Office	8,900 00	9,162 08		262 08	
	Weekly Court	1,800 00	1,781 91	18 09		
	Surrogate Court	3,225 00	3,107 80	117 20		
	Surrogate Judges and Local Masters	24,060 00	26,238 15		2,178 15	
	Inspection of Division Courts	5,250 00	5,893 51		643 51	
	Deputy Clerks of the Crown	17,550 00	16,529 61	1,020 39		
	Deputy Clerks of the Crown as Local Registrars	6,625 00	6,349 46	275 54		
	Land Titles Office	5,250 00	5,529 27		279 27	
	Local Masters of Titles	4,249 94	3,783 08	466 86		
	Drainage Act	3,500 00	3,800 30		300 30	
	District of Algoma	18,200 00	20,622 23		2,422 23	
	do Thunder Bay	12,350 00	10,384 36	1,965 64		
	do Rainy River	13,800 00	13,770 64	29 36		
	do Nipissing	13,400 00	14,056 29		656 29	
	do Muskoka	8,950 00	8,546 29	403 71		
	do Parry Sound	9,050 00	10,749 45		1,699 45	
	Provisional County of Haliburton	1,250 00	1,150 00	100 00		
	District of Manitoulin	4,750 00	7,487 71		2,737 71	
	Provincial Police	11,600 00	11,804 99		204 99	
	Crown Counsel Prosecutions	8,000 00	5,547 44	2,452 56		
	Criminal Justice	175,000 00	153,723 34	21,276 66		
	Inspection of Legal Offices	4,200 00	4,151 45	48 55		
	Criminal Investigations	4,405 00	4,405 00			
	Special Services	2,000 00		2,000 00		
	Sheriff's Fees	7,500 00	9,258 04		1,758 04	
	Seals and other Contingencies	407 00	268 15	138 85		
	Constitutional Questions	5,000 00	5,476 05		476 05	
	Grouped Counties	1,200 00	815 40	384 60		
	Ditches and Watercourses Act	500 00		500 00		
	Shorthand Reporters	10,700 00	10,700 00			
	Circuit and County Judges Library	1,200 00	1,200 00			
	Weekly Court, London and Ottawa	100 00		100 00		
	Total Administration of Justice	452,048 94	432,753 54	33 038 21	13,742 81	

No. 16.—Statement of Expenditure by the Treasurer of Ontario, Etc.—*Con.*

SERVICE.	SUB-SERVICE.	Appropriation.	Expended.	Unexpended.	Overexpended.	Overdrafts of appropriation.
		$ c.	$ c.	$ c.	$ c.	$ c.
Education	Public and Separate Schools	242,879 87	242,879 87			
	Poor and District do	55,000 00	58,145 39		3,145 39	
	Kindergarten Schools	3,250 00	3,060 15	189 85		
	Night Schools	500 00	239 00	261 00		
	Public School Leaving and Continuation Classes	20,000 00	19,393 03	606 97		
	Model Schools	10,350 00	9,551 65	798 35		
	French-English Training Schools	800 00	800 00			
	Teachers Associations and D. T. Schools	3,400 00	2,757 75	642 25		8,588 32
	Inspection of Schools	58,370 00	60,292 04		1,922 04	
	Departmental Examinations	28,650 00	37,046 33		8,396 33	
	Normal and Model Schools Toronto Salaries	22,950 00	22,899 67	50 33		
	do do Expenses	2,450 00	2,032 42	417 58		
	do Ottawa, Salaries	20,750 00	20,641 99	108 01		
	do do Expenses	2,750 00	1,479 94	1,270 06		
	do London—salaries	7,050 00	6,848 33	201 67		
	do do —expenses	3,100 00	2,770 63	329 37		
	High Schools and Collegiate Institutes	109,100 00	109,288 31		188 31	
	Ontario Normal College	10,075 00	9,409 50	665 50		
	Departmental Library and Museum—salaries	4,450 00	4,450 00			
	do —expenses	3,600 00	3,641 08		41 08	41 08
	School Practical Science—salaries	24,700 00	25,425 00		725 00	
	do —expenses	5,450 00	4,331 71	1,118 29		
	Public Libraries	52,500 00	54,288 36		1,788 36	
	Art Schools, Examinations, etc	4,000 00	3,360 87	639 13		
	Literary and Scientific	3,500 00	3,500 00			1,149 23
	Historical Societies	1,100 00	1,100 00			
	Technical Education	15,000 00	14,867 01	132 99		
	Miscellaneous	13,825 00	16,164 20		*2,339 20	
	Superannuated Teachers	61,300 00	64,244 92		2,944 92	2,944 92
	Total Education	790,849 87	804,909 15	7,431 35	21,490 63	
Public Inst. Maintenance	Asylum for Insane, Toronto	101,729 00	101,693 52	35 48		
	do London	128,018 00	124,731 91	3,296 09		
	do Kingston	76,546 00	76,464 53	81 47		
	do Hamilton	125,017 00	124,869 50	147 50		
	do Mimico	75,558 00	70,322 31	5,235 69		
	do Brockville	76,713 00	76,635 58	77 42		
	Asylum for Females, Cobourg	30,858 00	25,561 91	5,296 09		
	do Idiots, Orillia	62,718 00	64,747 34		2,029 34	2,029 34
	Central Prison, Toronto	62,450 00	62,448 32	1 68		
	Reformatory for Boys	26,550 00	28,919 26		2,369 26	2,369 26
	Deaf and Dumb Institute	45,384 00	45,384 00			

	Blind Institute	32,851 00	32,212 41	638 59		
	Mercer Reformatory	26,075 00	30,408 34		4,333 34	4,333 34
	Total Public Institutions Maintenance	870,467 00	864,398 93	14,800 01	8,731 94	
Immigration	Agencies in Europe	4,825 00	4,777 25	47 75		
Agriculture	District Societies	76,650 00	75,337 60	1,312 40		
	Grants to Associations	25,000 00	26,648 60		1,648 60	
	Farmers' Institutes	11,650 00	13,739 43		2,089 43	
	Incidentals	32,000 00	30,531 79	1,468 21		
	San José Scale	4,000 00	7,237 57		3,237 57	
	Experimental Fruit Stations	3,100 00	3,008 20	91 80		
	Eastern Dairy School	4,850 00	5,606 74		756 74	
	Pioneer Dairy Farm	1,000 00	2,151 90		1,151 90	
	Western Dairy School	2,850 00	3,111 85		261 85	
	Bureau of Industries	5,500 00	3,149 02	2,350 98		
	Cold Storage	4,000 00	955 19	3,044 81		
	Ontario Agricultural College	36,299 00	36,053 14	245 86		
	Experimental Farm and Feeding	4,720 00	6,194 16		1,474 16	
	Experimental Plots	6,653 00	7,812 12		1,159 12	
	Experimental Dairy	2,520 00	2,649 49		129 49	
	Central Dairy School	3,555 00	2,661 98	893 02		
	Poultry Department		1,253 02		1,253 02	
	Horticultural Department	5,304 00	5,362 84		58 84	
	Mechanical Department	875 00	875 18		18	
	Total Agriculture	230,526 00	234,339 82	9,407 08	13,220 90	3,813 82
Hospitals and Charities		217,487 89	215,521 84	1,966 05	20 00	
Repairs and Maintenance	Government House	8,700 00	7,834 13	865 87		
	Parliament and Departmental Buildings	32,890 00	34,583 27		1,693 27	
	Exclusive of Departments	1,000 00	2,188 96		1,188 96	
	Old Parliament Buildings	750 00	805 39		55 39	
	Attorney General's Department	700 00	301 40	398 60		
	Crown Lands Department	2,200 00	2,779 34		579 34	3,179 40
	Public Works Department	1,100 00	680 86	419 14		
	Treasury Department	700 00	733 82		33 82	
	Provincial Secretary's Office	700 00	1,334 43		634 43	
	Department of Agriculture	700 00	511 93	188 07		
	Educational Buildings	7,800 00	9,524 08		1,724 08	1,724 08
	Miscellaneous	3,750 00	3,750 00			
	Normal School, Ottawa	4,900 00	2,675 42	2,224 58		
	do London	2,900 00	1,161 11	1,738 89		
	School of Practical Science	4,125 00	5,154 02		1,029 02	1,029 02
	Ontario Agricultural College	8,200 00	7,521 42	678 58		
	Osgoode Hall	8,980 00	9,753 60		773 60	773 60
	Total Repairs and Maintenance	90,095 00	91,293 18	6,513 73	7,711 91	

*Covered by 60 Vic. cap. 59, sec. 4.

No. 16.—Statement of Expenditure by the Treasurer of Ontario, Etc.—*Con.*

SERVICE.	SUB-SERVICE.	Appropriation.	Expended.	Unexpended.	Overexpended	Overdrafts of appropriation
		$ c.	$ c.	$ c.	$ c.	$ c.
Public Buildings	Asylum for Insane, Toronto	1,600 00	1,242 61	357 39		
	do do Inspector	6,107 00	3,302 34	2,804 66		
	do Mimico	2,450 00	1,515 90	934 10		
	do do Inspector	3,875 00	3,867 46	7 54		
	do London	24,860 00	24,672 82	187 18		
	do do Inspector	3,435 00	3,743 89		308 89	121 71
	do Hamilton	5,260 00	3,728 99	1,531 01		
	do do Inspector	3,000 00	515 70	2,484 30		
	do Kingston	8,700 00	8,727 42		27 42	
	do do Inspector	1,300 00	1,159 45	140 55		
	do Brockville	2,365 00	1,198 55	1,166 45		
	do do Inspector	4,490 00	3,448 72	1,041 28		
	Asylum for Idiots, Orillia	300 00	125 55	174 45		
	do do Inspector	7,300 00	7,274 77	25 23		
	Central Prison, Toronto	4,250 00	1,248 49	3,001 51		
	do do Inspector	4,150 00	7,127 90		2,977 90	
	Reformatory for Boys, Penetanguishene	1,500 00	1,343 65	156 35		
	do do Inspector	2,950 00	2,407 95	542 05		
	Reformatory for Females, Toronto	4,549 12	2,216 65	2,332 47		
	do do Inspector	3,200 00	7,481 30		4,281 30	1,948 83
	Blind Institute, Brantford	1,100 00	1,600 32		500 32	
	do do Inspector	1,700 00	1,015 82	684 18		
	Deaf and Dumb Institute, Belleville	875 00	575 75	299 25		
	do do Inspector	2,920 00	3,311 95		391 95	92 70
	Cobourg Asylum, Female Patients	21,400 00	16,771 57	4,628 43		
	do do Inspector	2,000 00	2,240 22		240 22	
	Agricultural College	35,800 00	35,804 16		4 16	4 16
	Normal and Model School, Toronto	1,150 00		1,150 00		
	do do Ottawa	3,200 00	2,637 57	562 43		
	do do London	3,350 00	1,814 71	1,535 29		
	School Practical Science, Toronto	108,250 00	34,927 13	73,322 87		
	Osgoode Hall, Toronto	2,000 00	1,990 82	9 18		
	New Parliament Buildings	900 00	312 74	587 26		
	District of Algoma	4,600 00	3,393 38	1,206 62		
	do Thunder Bay	1,300 00	30 00	1,270 00		
	do Muskoka	2,000 00	1,648 23	351 77		
	do Parry Sound	1,450 00	1,449 84	16		
	do Nipissing	1,900 00	670 27	1,229 73		
	do Rainy River	4,300 00	1,732 00	2,568 00		
	Reformatory for Boys, Oxford	30,000 00		30,000 00		
	Total Public Buildings	325,836 12	198,276 59	136,291 69	8,732 16	

Public Works	Muskoka Lakes Works	11,500 00	10,680 93	819 07		
	Madawaska River	850 00	908 29		58 29	
	Petewawa River	590 00	624 46		34 46	
	Sturgeon River	700 00	1,301 71		601 71	
	Magnetawan Swing Bridge	4,300 00	5 58	4,294 42		
	Marys and Fairy Lakes	5,374 00	5,976 16		602 16	
	Black River Works	1,000 00	1,000 00			
	Mattawa River	500 00	500 00			
	Wabis River	3,200 00	1,340 51	1,859 49		
	Muskoka River Bridge, etc	2,300 00	2,000 00	300 00		
	Des Joachins Rapids Bridge	4,000 00	4,000 00			
	Canard River	5,000 00		5,000 00		
	Indian Point Bridge	2,000 00	2,596 61		596 61	
	Mississagua R. Piers	3,200 00	4,355 94		1,155 94	
	Drainage, 63 Vic., cap 8	22,900 00	5,297 00	17,603 00		
	Bass Lake Dam	1,100 00	1,144 19		44 19	
	Squaw R. Dam	700 00	581 56	118 44		
	Docks on Rainy River	2,500 00	2,450 00	50 00		
	Indian River Deepening	2,000 00	110 26	1,889 74		
	Burnt R. Bridge, Kinmount	1,000 00		1,000 00		
	Landing Dock, Wahigoon	600 00	777 95		177 95	
	McKenzie Creek and Snake River	400 00	341 00	59 00		
	Michipocoten R. Bridge	1,000 00		1,000 00		
	Stony Creek Bridge	1,000 00	831 68	168 32		
	Cashmere Dam		1,000 00		1,000 00	
	Surveys, inspection, etc	1,000 00	1,831 88		831 88	
	Lockmasters' salaries	5,200 00	5,020 00	180 00		
	Maintenance Locks, Dams, etc	9,487 00	9,934 23		447 23	
	Total Public Works	93,401 00	64,609 94	34,341 48	5,550 42	
Colonization and Mining Roads		171,375 00	196,246 07		24,871 07	24,871 07
Charges Crown Lands	Board of Surveyors	200 00	200 00			
	Agents' Salaries, etc	24,000 00	26,197 89		2,197 89	
	Forest Ranging	33,000 00	31,962 48	1,037 52		
	Forest Re-serve	5,000 00	5,989 24		989 24	
	Fire Ranging	33,000 00	34,097 31		1,097 31	
	Cullers Act	200 00	84 24	115 76		
	Quebec Agency	1,975 00	2,070 34		95 34	
	Ottawa Agency	2,800 00	2,706 60	93 40		
	Surveys	33,000 00	32,887 97	112 03		
	Rat Portage Office	1,300 00	1,354 15		54 15	
	Inspections, Explorations, etc	14,550 00	11,876 58	2,673 42		
	Mining Schools	24,500 00	47,071 80		*22,571 80	

*Covered by 1 Edward, cap. 44, $22,500.00.

No. 16.—STATEMENT of Expenditure by the Treasurer of Ontario, Etc.—*Continued.*

SERVICE.	SUB-SERVICE.	Appropriation.	Expended.	Unexpended.	Overexpended.	Overdrafts of appropriations.
		$ c.	$ c.	$ c.	$ c.	$ c.
Charges on Crown Lands	Mineral Collections	500 00	120 00	380 00		
	Diamond Drills	6,000 00	5,451 45	548 55		
	Iron Mining Act		25,000 00		†25,000 00	
	Total Charges Crown Lands	180,025 00	227,070 05	4,960 68	52,005 73	
Refunds	Education	1,000 00	1,069 78		69 78	
	Crown Lands	18,500 00	21,090 19		2,590 19	
	Municipalities Fund	486 64	368 32	118 32		
	Land Improvement Fund	2,579 98	2,579 98			
	Miscellaneous		132 06		132 06	
	Total Refunds	22,566 62	25,240 33	118 32	2,792 03	2,673 71
Miscellaneous	Charges on Revenue	5,400 00	10,628 93		5,228 93	
	Expenses of Elections and Election Trials	86,000 00	82,463 51	3,536 49		
	Ontario Rifle Association	1,000 00	1,000 00			
	Ontario Artillery Association	500 00	500 00			
	Canadian Military Institute	100 00	100 00			
	Manhood Suffrage Registration	1,000 00	2,129 57		1,129 57	
	Voters' Lists	2,500 00	9,751 52		7,251 52	
	Gratuities	9,301 00	17,648 00		8,347 00	
	Telephone Service	3,400 00	4,187 40		787 40	
	Removal of Patients	7,000 00	7,133 56		133 56	
	Factory Inspection	6,200 00	6,350 56		150 56	
	Arbitration, Canada and Quebec	5,000 00	9,844 45		4,844 45	
	Game Inspection	5,500 00	9,757 25		4,257 25	
	Destruction of Wolves	1,500 00	2,475 00		975 00	
	Colonization Purposes, etc	11,000 00	7,582 09	3,417 91		
	Algonquin National Park	7,800 00	7,572 27	227 73		
	Rondeau Provincial Park	2,800 00	4,796 45		1,996 45	
	Fisheries	31,450 00	33,514 44		2,064 44	
	Statue to late Queen Victoria	6,000 00	5,383 91	616 09		
	Monument to Governor Simcoe	3,000 00	3,000 00			
	Committee of House, Art Purposes	1,400 00	1,176 00	224 00		
	Municipal Auditor	2,600 00	2,596 21	3 79		
	Prevention Export of Sawlogs	2,000 00		2,000 00		
	Exploration of N. Ontario	2,000 00		2,000 00		
	Compilation of Imperial Statutes	3 500 00	3,515 46		15 46	
	Labor Bureau	3,000 00	3,177 03		177 03	
	Assessment Commission	3,000 00	9,114 62		6,114 62	
	Pan-American Exhibition	1,500 00	1,406 50	93 50		

United Empire Loyalists	200 00	200 00			
Temiscamingue Railway Survey	5,000 00		5,000 00		
Eastern Good Roads Association	200 00	200 00			
Monument to Sir Geo. Kirkpatrick	500 00	500 00			
Attorney-General *v.* Cameron	1,831 12	1,578 00	253 12		
Board of Trade, Toronto	5,000 00		5,000 00		
Liquor Act Vote	45,000 00	19,995 26	25,004 74		
Re Scott, references to Judges	750 00	601 79	148 21		
Municipal Loan Fund		517 90		517 90	
Incidentals	50,000 00	8,854 03	41,145 97		
Total Miscellaneous	323,932 12	279,251 71	88,671 55	43,991 14	
Total Supply Bill	4,196,025 56	4,064,663 42	347,768 58	216,406 44	
Railway Subsidy Fund		126,177 11			
Annuities		102,900 00			
Drainage Debentures, Municipal		925 12			
do Tile		700 00			
University of Toronto, Sec. 16, Cap. 41, Edw. 7		40,444 75			
Common School Fund		9,193 18			
Grand totals expenditure and overdrafts		4,345,003 58			71,876 64

†Covered—R. S. O. 1897, cap. 36, sec. 11, 12.

C. H. SPROULE,
Provincial Auditor.

Provincial Auditor's Office,
Toronto, February 15th, 1903.

No. 17.—Comparative Statement of Expenditure during the years 1901 and 1902.

SERVICE.	SUB-SERVICE.	Expenditure, 1901.		Expenditure, 1902.	
		$ c.	$ c.	$ c.	$ c.
Civil Government	Lieutenant-Governor's Office....salaries	2,305 00		2,305 00	
	do ....expenses	1,589 16		1,597 00	
	Attorney-General's Office....salaries	15,266 00		15,332 54	
	do ....expenses	2,259 83		2,261 90	
	Education Department....salaries	18,220 00		17,950 00	
	do ....expenses	2,368 75		1,865 12	
	Crown Lands Department....salaries	39,310 00		39,170 76	
	do ....expenses	18,060 12		17,551 75	
	Bureau of Mines....salaries	3,660 83		3,650 00	
	do ....expenses	3,812 78		2,687 37	
	Colonization and Forestry....salaries	5,000 00		4,388 00	
	do ....expenses	1,276 99		1,575 47	
	Public Works....salaries	23,450 00		24,060 00	
	do ....expenses	5,310 95		9,122 63	
	Treasury Department....salaries	17,050 00		17,250 00	
	do ....expenses	3,182 65		3,668 08	
	Provincial Auditor's Office....salaries	7,625 00		7,725 00	
	do ....expenses	1,470 29		1,561 03	
	Provincial Secretary's....salaries	16,541 00		16,800 00	
	do ....expenses	3,866 46		4,291 18	
	Inspection of Public Institutions....salaries	13,247 33		14,650 00	
	do ....expenses	3,118 66		3,491 52	
	Audit of License and Justice Accounts....salaries	9,150 00		9,250 98	
	do ....expenses	632 99		880 35	
	Registrar-General's Branch....salaries	7,640 34		8,277 64	
	do ....expenses	2,295 89		3,346 74	
	Provincial Board of Health....salaries	5,253 00		5,550 00	
	do ....expenses	2,239 78		2,417 69	
	Department of Agriculture....salaries	17,750 00		18,100 00	
	do ....expenses	1,488 95		1,224 34	
	Insurance Branch....salaries	5,450 00		5,550 00	
	do ....expenses	2,900 22		2,837 73	
	Neglected Children's Branch....salaries	3,400 00		3,500 00	
	do ....expenses	2,432 86		2,058 86	
	Miscellaneous :—				
	Official *Gazette*	6,866 50		3,544 69	
	King's Printer	3,393 35		3,520 05	
	Registry Offices	2,250 00		2,250 00	
	Total Civil Government		281,135 68		285,203 42

Legislation	Salaries	15,196 54		15,950 00	
	Sessional Writers, Clerks of Committees, etc.	10,288 70		11,635 90	
	Postages and cost of House Post Office	1,600 55		2,434 45	
	Stationary, Printing and Binding and Distribution of Statutes	39,353 22		41,319 78	
	Library	3,029 19		3,283 44	
	Indemnity to Members	58,322 20		58,950 00	
	Expenses	6,348 44		7,198 03	
	Total Legislation		134,138 84		140,771 60
Administration of Justice	Supreme Court	34,252 31		35,208 61	
	Appeal Court	3,289 21		3,708 74	
	High Court	3,107 88		2,752 68	
	Central Office	14,991 26		14,791 51	
	Registrar's Office	8,959 05		9,162 68	
	Weekly Court	1,787 60		1,781 91	
	Surrogate Court	3,664 33		3,107 80	
	Surrogate Judges and Local Masters	25,162 75		26,238 15	
	Inspection of Division Courts	5,250 83		5 893 51	
	Deputy Clerks of the Crown	17,150 00		16,529 61	
	Deputy Clerks of the Crown and Local Registrars	6,556 86		6,349 46	
	Land Titles Office	5,004 13		5,529 27	
	Local Masters of Titles	8,369 29		3,783 08	
	Drainage Act	4,619 93		3,800 30	
	District of Algoma	19,070 62		20,622 23	
	do Thunder Bay	10 660 32		10,384 36	
	do Rainy River	14,333 98		13,770 64	
	do Nipissing	11,620 11		14,056 29	
	do Muskoka	8,957 75		8,546 29	
	do Parry Sound	10,273 22		10,749 45	
	Provisional County Haliburton	1,150 00		1,150 00	
	District of Manitoulin	5,424 51		7,487 71	
	Provincial Police	13,358 72		11,804 99	
	Crown Counsel Prosecutions	6,503 78		5,547 44	
	Criminal Justice	141,217 78		153,723 34	
	Inspection of Legal Offices	3,895 24		4,151 45	
	Criminal Investigations	4,405 00		4,405 00	
	Sheriffs' Fees, etc.	7,699 38		9,258 04	
	Seals and other Contingencies	372 20		268 15	
	Constitutional Questions	2,227 23		5,476 05	
	Grouped Counties	807 55		815 40	
	Shorthand Reporters	10,700 00		10,700 00	
	Circuit and County Judges Library	1,200 00		1,200 00	
	Total Administration of Justice		416,042 82		432,753 54
Education	Public and Separate Schools	243,033 10		242,879 87	
	Poor and District Schools	54,999 40		58,115 39	
	Kindergarten Schools	3,017 11		3,060 15	
	Night Schools	202 80		239 00	
	Public School Leaving and Continuation Classes	18,548 72		19,393 03	

No. 17.—Comparative Statement of Expenditure during the years 1901 and 1902.

SERVICE.	SUB SERVICE.	Expenditure, 1901.		Expenditure, 1902.	
		$ c.	$ c.	$ c.	$ c.
Education.—*Con*	Model Schools	9,760 54		9,551 65	
	French-English Training Schools	800 00		800 00	
	Teachers Associations and Dis. T. Schools	2,816 90		2,757 75	
	Inspection of Schools	58,088 58		60,292 04	
	Departmental Examinations	34,605 04		37,046 33	
	Normal and Model Schools, Toronto—salaries	23,086 47		22,899 67	
	do —expenses	2,278 09		2,032 42	
	do Ottawa—salaries	20,338 00		20,641 99	
	do —expenses	2,447 57		1,479 94	
	do London—salaries	6,940 50		6,848 33	
	do —expenses	2,637 88		2,770 63	
	High Schools and Collegiate Institutes	106,258 26		109,288 31	
	Ontario Normal College	8,650 14		9,409 50	
	Departmental Library and Museum—salaries	4,400 00		4,450 00	
	do do —expenses	2,846 49		3,641 08	
	School of Practical Science—salaries	23,660 00		25,425 00	
	do —expenses	4,707 86		4,331 71	
	Public Libraries	49,202 00		54,288 36	
	Art Schools, Examinations, etc	3,288 39		3,360 87	
	Literary and Scientific	3,400 00		3,500 00	
	Historical Societies	1,000 00		1,100 00	
	Technical Education	10,177 30		14,867 01	
	Miscellaneous	16,751 53		16,164 20	
	Superannuated Teachers	64,250 66		64,244 92	
	Total Education		782,193 33		804,909 15
Public Inst. Maintenance	Asylum for Insane, Toronto	100,429 80		101,693 52	
	do London	125,503 05		124,731 91	
	do Kingston	75,698 84		76,464 53	
	do Hamilton	122,593 90		124,869 50	
	do Mimico	75,093 50		70,322 31	
	do Brockville	75,571 08		76,635 58	
	Asylum for Females, Cobourg	2,834 06		25,561 91	
	do Idiots, Orillia	61,605 63		64,747 34	
	Central Prison, Toronto	60,600 00		62,448 32	
	Reformatory for Boys	30,039 12		28,919 26	
	Deaf and Dumb Institute	45,252 49		45,384 00	
	Blind Institute	32,532 74		32,212 41	
	Mercer Reformatory	25,409 76		30,408 34	
	Total Public Institutions Maintenance		833,163 97		864,298 93

Immigration	Agencies in Europe		4,825 00		4,777 25
Agriculture	District Societies	75,624 00		75,337 60	
	Grants to Associations	23,456 35		26,648 60	
	Farmers' Institutes	11,894 42		13,739 43	
	Incidentals	24,425 11		30,531 79	
	San José Scale	4,250 08		7,237 57	
	Experimental Fruit Stations	2,573 81		3,008 20	
	Eastern Dairy School	4,692 12		5,606 74	
	Pioneer Dairy Farm	1,243 72		2,151 90	
	Western Dairy School	2,949 41		3,111 85	
	Bureau of Industries	2,593 80		3 149 02	
	Cold Storage			955 19	
	Ontario Agricultural College	31,744 85		36,653 14	
	Experimental Farm and Feeding	4,960 69		6,194 16	
	Experimental Plots	6,076 23		7,812 12	
	Experimental Dairy	124 29		2,649 49	
	Central Dairy School	5,508 03		2,661 98	
	Poultry Department	1,502 81		1,253 02	
	Horticultural Department	5,439 25		5,362 84	
	Mechanical Department	799 97		875 18	
	Total Agriculture		209,858 94		234,339 82
Hospitals and Charities			192,280 65		215,521 84
Repairs and Maintenance	Government House	10,402 58		7,834 13	
	Parliament and Departmental Buildings	33,577 98		34,583 27	
	Exclusive of Departments	1,462 01		2,188 96	
	Old Parliament Buildings	741 97		805 39	
	Attorney-General's Department	800 90		301 40	
	Crown Lands Department	2,475 05		2,779 34	
	Public Works Department	1,349 85		680 85	
	Treasury Department	330 24		733 82	
	Provincial Secretary's Department	865 74		1,334 43	
	Department of Agriculture	487 97		511 93	
	Educational Buildings	7,635 84		9,524 08	
	Miscellaneous	3,670 00		3,750 00	
	Normal School, Ottawa	4,420 60		2,675 42	
	do London	2,103 48		1,161 11	
	School of Practical Science	4,425 12		5,154 02	
	Ontario Agricultural College	8,194 91		7,521 42	
	Osgoode Hall	8,737 08		9,753 60	
	Total Repairs and Maintenance		91,681 32		91,293 18
Public Buildings	Asylum for Insane, Toronto	496 78		1,242 61	
	do Inspector	2,484 25		3,302 34	
	do Mimico	395 97		1,515 90	
	do Inspector	3,629 03		3,867 46	
	do London	15,891 60		24,672 82	

No. 17.—Comparative Statement of Expenditure during the years 1901 and 1902.

SERVICE.	SUB-SERVICE.	Expenditure, 1901.		Expenditure, 1902.	
		$ c.	$ c	$ c.	$ c.
Public Buildings.—*Con.*	Asylum for Insane, London—Inspector	3,764 39		3,743 89	
	do Hamilton	2,611 22		3,728 99	
	do Inspector	2,919 94		515 70	
	do Kingston	7,991 59		8,727 42	
	do Inspector	765 46		1,159 45	
	do Brockville	1,107 21		1,198 55	
	do Inspector	2,591 87		3,448 72	
	Asylum for Idiots, Orillia	7,500 00		7,400 32	
	Central Prison, Toronto	12,785 90		8,376 39	
	Reformatory for Boys, Penetanguishene	2,121 52		3,751 60	
	Reformatory for Females, Toronto	5,712 11		9,697 95	
	Blind Institute, Brantford	3,463 85		1,600 32	
	do Inspector	1,193 35		1,015 82	
	Deaf and Dumb Institute, Belleville	4,260 59		575 75	
	do Inspector	1,350 61		3,311 95	
	Cobourg Asylum for Female Patients	41,852 20		16,771 57	
	do Inspector	10,488 88		2,240 22	
	Agricultural College	26,838 02		35,804 16	
	Normal and Model School, Toronto	202 53			
	do Ottawa	4,128 27		2,637 57	
	do London	10,323 04		1,814 71	
	School Practical Science, Toronto	4,257 60		34,927 13	
	Osgoode Hall, Toronto	3,950 00		1,990 82	
	New Parliament Buildings	1,316 89		312 71	
	District of Algoma	3,861 01		3,393 38	
	do Thunder Bay	110 00		30 00	
	do Muskoka	421 62		1,648 23	
	do Parry Sound	3,163 37		1,419 84	
	do Nipissing	471 22		670 27	
	do Rainy River	90 10		1,732 60	
	Reformatory for Boys, Oxford	96 00			
	Total Public Buildings		194,607 99		198,276 59
Public Works	Muskoka Lakes works	911 49		10,680 93	
	Peninsula Creek bridge	2,253 83			
	Bear Creek	1,617 52			
	Magnetawan swing bridge	2,049 10		5 58	
	Madawaska River bridge	4,913 13		908 29	
	Petewawa River bridge	3,254 79		624 46	

Pub'ic Works.—*Con.*	Sturgeon River bridge	2,314 87		1,301 71	
	R moving obstructions from navigable streams	302 58			
	Mill Creek	500 00			
	Portage du Fort bridge	5,000 00			
	Gull and Burnt River works	2,112 98			
	Manitou dam	520 59			
	Damages water, Rat Portage	800 00			
	Marys and Fairy Lakes	4,868 84		5,976 16	
	Inkerman dam	1,000 00			
	Chemong Lake bridge	3,500 00			
	Moose River channel	1,000 00			
	Bridge Twp, Cambridge	1,000 00			
	Township of Elma, drainage	4,000 00			
	Big Creek drain	4,567 30			
	Surveys, arbitrations, etc	1,104 74		1,831 88	
	Locknasters' salaries	5,093 54		5,020 00	
	Maintenance, locks, dams, etc	8,162 71		9,934 23	
	Black River works			1,000 00	
	Mattawa River			500 00	
	Wabis River			1,340 51	
	Muskoka River bridge, etc			2,000 00	
	Des Joachins Rapids bridge			4,000 00	
	Indian Point bridge			2,596 61	
	Mississagna R piers			4,355 94	
	Drainage 63 Vic., cap 8			5,297 00	
	Bass Lake dam			1,144 19	
	Squaw R. dam			581 56	
	Docks on Rainy River			2,450 00	
	Indian River deepening			110 26	
	Landing dock, Wabigoon			777 95	
	McKenzie Creek and Snake River			341 00	
	Stony Creek bridge			831 68	
	Cashmere dam			1,000 00	
	Total Public Works		50,847 51		64,609 94
Colonization and Mining Roads			138,801 38		196,246 07
Charges on Crown Lands	Board of Surveyors	200 00		200 00	
	Agents' Salaries, etc	24,038 01		25,961 34	
	Forest Ranging	35,981 95		32,199 03	
	Forest Reserve	4,669 49		5,989 24	
	Fire Ranging	29,624 62		34,097 31	
	Cullers' Act	95 47		84 24	
	Quebec Agency	2,005 02		2,070 34	
	Ottawa Agency	2,938 38		2,706 60	
	Surveys	17,182 35		32,887 97	
	Rat Portage Office	1,680 53		1,354 15	
	Inspections, Explorations, etc	7 800 08		11,876 58	
	Mining Schools	42,069 46		17,071 80	

No. 17.—Comparative Statement of Expenditure during the years 1901 and 1902.

SERVICE.	SUB-SERVICE.	Expenditure, 1901.		Expenditure, 1902.	
		$ c.	$ c.	$ c.	$ c.
Charges on Crown Lands—*Con.*.	Mineral Collections	500 00		120 00	
	Diamond Drills	3,485 70		5,451 45	
	Iron Mining Act	6,737 80		25,000 00	
	Total Charges Crown Lands	.....	179,008 85	.....	247,070 05
Refunds	Education	1,019 10		1,069 78	
	Crown Lands	18,314 76		21,090 19	
	Municipalities Fund	486 64		368 32	
	Land Improvement Fund	3,436 28		2,579 98	
	Miscellaneous	1,027 82		132 06	
	Total Refunds	.....	24,314 60	.....	25,240 33
Miscellaneous	Charges on Revenue	6,135 35		10,628 93	
	Expenses of Elections and Election Trials	2,286 16		82,463 51	
	Industrial Schools	8,188 90		†	
	Marriage Licenses	248 11		*	
	Ontario Rifle Association	1,000 00		1,000 00	
	Ontario Artillery Association	500 00		500 00	
	Canadian Military Institute	100 00		100 00	
	Joint Stock Companies	241 12		*	
	Manhood Suffrage Registration	15 00		2,129 57	
	Voters' Lists	9,671 74		9,751 52	
	Gratuities	19,966 85		17,648 00	
	Telephone Service	3,248 72		4,187 40	
	Removal of Patients	6,062 61		7,133 56	
	Prisoners' Aid Society	2,650 00		†	
	Sanitary Investigations	25,094 15		†	
	Factory Inspection	6,094 80		6,350 56	
	Arbitration, Canada and Quebec	5,262 80		9,844 45	
	Exhibit Imperial Institute	535 93		.....	
	Game Inspection	8,414 58		9,757 25	
	Children's Aid Societies	2,181 95		†	
	Destruction of Wolves	1,585 00		2,475 00	
	Colonization Purposes, etc	6,477 50		7,582 09	
	Algonquin National Park	7,563 69		7,572 27	
	Rondeau Provincial Park	1,662 49		4,796 45	
	Fisheries	32,560 89		33,514 44	

Miscellaneous. *Con.*	Canadian Humane Society	250 00		†	
	Statute to late Queen Victoria	4,500 00		5,383 91	
	Committee of House Art Purposes	1,325 00		1,176 00	
	Municipal Auditor	2,486 16		2,596 21	
	Victoria Order of Nurses	2,500 00		†	
	Prevention Export of Saw Logs	28 60			
	Exploration of Ontario between C.P.R. and Hudson's Bay	12,006 45			
	Compilation of Imperial Statutes	2,164 45		3,515 46	
	Labor Bureau	2,685 83		3,177 03	
	Assessment Commission	6,442 12		9,114 62	
	Pan American Exhibition	21,696 54		1,406 50	
	United Empire Loyalists	200 00		200 00	
	Temiscamingue Railway Survey	9,461 10			
	Patriotic Fund	1,344 79			
	Incidentials	29,959 50		8,854 03	
	Monument Governor Simcoe			3,000 00	
	Eastern Good Roads Association			200 00	
	Monument Sir Geo. Kirkpatrick			500 00	
	Attorney General *v.* Cameron			1,578 00	
	Liquor Act Vote			19,995 26	
	Re Scott References to Judges			601 79	
	Municipal Loan Fund			517 90	
	Total Miscellaneous		264,738 88		279,251 71
Railway Subsidy Fund			96,209 36		126,177 11
Annuities			102,900 00		102,900 00
Drainage Debentures	Municipal		4,997 46		925 12
do	Tile		2,100 00		700 00
University of Toronto			25,281 00		40,444 75
Common School Fund			9,706 91		9,193 18
			4,038,834 49		4,345,003 58

* Transferred to Provincial Secretary's Department. † Transferred to Hospitals and Charities.

Provincial Auditor's Office,
Toronto, February 15th, 1903.

C. H. SPROULE,
Provincial Auditor.

No 18

CENTRAL PRISON INDUSTRIES.

Expenditure for the year ending December 31st, 1902.

Name.	Article.	Amount.	Totals.
		$ c.	$ c.
W. Blaikie	Hardware, iron castings	31 18	
S Trees & Co	do	100 99	
Wood Vallance & Co	do	5,298 04	
H. S. Howland, Sons & Co	do	549 43	
Hobbs Hardware Co	do	1,434 55	
Aikenhead Hardware	do	465 30	
Galloway, Taylor & Co	do	147 39	
Ontario Malleable Iron Co	do	54 48	
Adams Bros.	do	35 00	
M. & L. Samuel Benjamin & Co	do	50 15	
James Smart Manufacturing Co	do	104 27	
Gendron Manufacturing Co	do	380 61	
Graham Nail Works	do	242 46	
Wm. H. Frost	do	1,465 30	
Wheeler & Bain	do	37 15	
George B. Meadows & Co	do	154 61	
Thos. Davidson Co	do	1 80	
Geo Sparrow & Co	do	8 25	
Rice Lewis & Son	do	443 34	
Toronto Bolt Co	do	132 19	
Diamond Mountings Co	do	1 50	
G. Ibbotson & Son	do	1 25	
Metallic Roofing Co	do	25 00	
C. Kloepfer	do	2 45	
Canada Metal Co	do	16 08	
De Haven Manufacturing Co	do	58 47	
Rankin & Co	do	9 01	
Spramotor Co	do	75	
			11,251 00
United Factories	Brushes	50 26	
Stewart & Wood	Paints and oils	483 98	
Scarfe & Co	Varnishes	460 00	
Imperial Varnish Co	do	501 49	
Sanderson, Pearcy & Co	Paints and oils	509 44	
James Robertson Co	Plumbers' supplies	566 12	
P. D Dods	Paints	122 39	
Canada Paint Co	do	1 00	
Blackwell & Co	do	3 10	
			2,697 78
Queen City Oil Co	Machine and wool oils	393 59	
Grant Hamilton Oil Co	do	449 23	
Geo. W. Grant & Co	do	137 37	
Atlantic Refining Co	do	80 45	
Independent Oil Co	do	113 77	
A. B. McColl & Co	do	68 12	
McColl Bros	do	33 47	
Marsh Manufacturing Co	do	64 67	
R. J. Kennedy	do	15 00	
			1,355 67
E. T. Carter	Wool, warp and tallow	8,527 90	
Hamilton Cotton Co	Warp	730 40	
			9,258 30
F. E. Atteaux & Co	Chemicals and dye stuffs	103 11	
Theo. H. Eaton & Son	do	219 75	
G. A. Bingham	do	18 12	
Empire Soap Co	do	9 76	
			350 74

CENTRAL PRISON INDUSTRIES.—*Continued.*

Name.	Article.	Amount.	Totals.
		$ c.	$ c.
Flett, Lowndes & Co	Dry goods and tailors' supplies	43 41	
John Macdonald & Co	do	2,168 39	
Robert Simpson Co	do	55 36	
Nisbet & Auld	do	1,942 98	
L. Farewell	do	6 00	
T. Eaton Co	do	37 24	
W. P. Rodger	do	67 21	
F. Hall & Son	do	3 00	
W. & D. Dineen	do	32 50	
J. Guinane	do	36 00	
Cummings & Sellers	do	48 00	
James Whimster	do	4 00	
Fairweather & Co	do	6 00	
J. Leckie	do	20 16	
			4,470 25
Beardmore & Co	Leather and findings	415 00	
W. G Fischer	do	2,680 79	
P. Jacobi	do	24 00	
			3,119 79
E. R. Burns Saw Co	Machinery and machinery supplies.	24 00	
Sadler & Haworth	do	945 29	
F. Oster	do	6 57	
A. W. Spooner	do	89 12	
W. Jessop & Sons	do	43 23	
Northey Co	do	155 13	
Hamilton Mfg. Co	do	94 02	
Dodge Mfg. Co	do	44 70	
Beardmore Belting Co	do	344 22	
Singer Mfg. Co	do	2 19	
W. Crabb & Co	do	86 00	
R. Spence & Co	do	22 04	
Creelman Bros	do	5 94	
Handstitch Co	do	30 00	
J. Inglis & Sons	do	121 04	
Polson Iron Works	do	319 07	
Toronto Electric Light Co	do	3 30	
Goldie McCullough	do	46 40	
Ker & Harcourt	do	37 65	
A. G. Stanners	do	1 50	
A. R. Williams Co	do	15 22	
McGregor, Gourlay & Co	do	10 56	
Power Specialty Co	do	96 03	
Miller & Van Winkle	do	5 30	
J. Bertram & Sons	do	8 75	
John Morrison Co	do	121 30	
Goe, Reid & Co	do	86 45	
A. J. Cody	do	3 50	
			2,768 52
Brown, Searle Co	Books, printing and stationery.	12 50	
Brown Bros	do	178 60	
Warwick Bros & Rutter	do	31 00	
J. J. Mitchell	do	8 00	
Hambly Bros	do	6 00	
Charles Mack	do	10 28	
Canada Printing Ink Co	do	13 65	
			260 03
Oliver Lumber Co	Lumber	1,227 66	
A. A. Scott	do	1,623 45	
W. N. McEachren & Co	do	316 75	
John McNeely	do	2,222 82	
H. Pedwell	do	1,307 89	
George Chew & Sons	do	3,631 72	

CENTRAL PRISON INDUSTRIES.—*Continued.*

Name.	Article.	Amount.	Total.
		$ c.	$ c.
Hamilton Bros	Lumber	683 01	
John B. Smith & Sons	do	39 31	
George Yates	do	85 45	
D. C. McLaren	do	119 62	
Goderich Lumber Co	do	213 00	
			11,470 68
Grand Trunk Ry	Freight, duty, etc	1,978 17	
C. P. Ry	do	544 73	
Hamilton S. B. Co	do	14 03	
Can. Express	do	7 10	
Dom. Express	do	1 70	
Robinson & Heath	do	166 48	
			2,712 21
Elias Rogers Co	Fuel	3,628 05	
do	S. screenings, 1,433 tons at 2.53	} 2,455 91	
do	Mine run, 726 tons at 3.38		
Simcoe Wood Co	Slabs	49 50	
Ely Bros	Charcoal	3 25	
			6,136 71
H. W. Nelson & Son	Greenhouse supplies	1 70	
Hugh Low & Co	do	326 83	
Havana Cigar Co	do	5 00	
			333 53
Consumers' Gas Co	Gas	260 55	
City of Toronto	Water	623 09	
W. J. King	Postage stamps	146 00	
Toronto Railway Co	Car tickets	42 00	
C. P. R. Telegraph Co	Telegrams	25	
G. N. W. Telegraph Co	do	1 31	
Bell Telephone Co	Messages	3 20	
Bank of Commerce	Exchange on cheques	6 19	
Wm. Houston	Travelling expenses	4 00	
W. W. Mason	do	4 85	
S. Brown	Wagon repairs	7 45	
Dominion Paper Box Co	Paper boxes	113 85	
Gutta Percha Rubber Co	Rubber goods	45 76	
Ontario Rubber Co	do	55 51	
Consolidated Plate Glass Co	Glass for tables	149 01	
Nerlich & Co	Glass alleys	47 50	
W. Harris & Co	Glue	58 80	
Beaver Paper Co	Wrapping paper	29 37	
W. G. Harris	do	52 37	
Canada Feather Co	Mattresses	11 85	
M. Hunter	Flour	1 00	
Chandler & Co	Webbing	2 00	
Kerr, Macdonald & Co	Drafting and revising lease re Humber Piggery	10 00	
R. G. Dun & Co	Mercantile reports	50 50	
			1,726 41
J. O. Anderson	12 months' salary as Accountant	450 00	
John White	do Indus. Foreman	800 00	
H. Abel	do do	800 00	
P. T. McKay	do do	1,000 00	
Samuel Smith	do do	1,000 00	
Walter Scott	do do	1,200 00	
George Moodey	do Ind. Instructor.	650 00	
George Sweetman	do do	650 00	
A. Thwaites	do do	650 00	
Geo. Ross	do Lumber Culler.	600 00	
H. Briefman	do Ind. Instructor.	600 00	
P. Mahler	5½ do Indus. Foreman	546 67	

CENTRAL PRISON INDUSTRIES.—*Concluded.*

Name.	Article.	Amount.	Total.
		$ c.	$ c.
Thomas Crossan	12 months' salary as Shipper	700 00	
Wm. Houston	do Gardener	750 00	
Thomas Gill	do Teamster	300 00	
Wm. Hill	do do	300 00	
W. J. Linton	do Night Patrol	600 00	
James Clarkson	do Consult'g Eng.	400 00	
E. A. Hammond	do Steamfitter.	500 00	
D. Robertson	do Indus. Guard	550 00	
J. Lillie	do do	550 00	
R. Vickers	do do	500 00	
R. Downing	dd Machinist	700 00	
John Harris	249 days salary as do	498 00	
W. W. Jackson	12 months' salary as Blacksmith	600 00	
John Seitz	6⅔ do Foreman	500 00	
Conrad Seitz	6¼ do do	208 88	
M. Clancy	12 do do	800 00	
J. B. Reid	Allowance Indus. Guard	150 00	
J. Barry	do do	50 00	
J. B. Miles	do do	50 00	
John Muir	do do	50 00	
J. Higgins	do do	50 00	
F. Dickenson	do do	50 00	
J. R Labelle	6 months' salary as do	24 96	
M. Kehoe	Services as Guard	650 00	
James Meston	do do	99 66	
A. Welsh	do Tinsmith	132 00	
James Ivory	do do	84 00	
Power Bros	do do	83 95	
J. R. Hancock	do Tailor	19 30	
W. Springer	do do	17 00	
			18,914
Sundry prisoners		721 30	
do newspapers		161 18	
do companies insurance		596 50	
			1,478
	Paid Treasurer of Ontario on acc't. of Industries to 30th Sept., 1902		21,000
			99,305
	Balance on hand Jan. 1st, 1902	14,535 00	
	Receipts for 12 months ending Dec. 31st, 1902	94,253 51	
			108,788
	Balance in bank Dec. 31, 1902		9,483

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ESTIMATES

OF THE

PROVINCE OF ONTARIO

FOR THE

YEAR ENDING 31ST DECEMBER,

1903.

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY.

TORONTO:
Printed and Published by L. K. Cameron,
Printer to the King's Most Excellent Majesty.
1903.

WARWICK BRO'S & RUTTER, Printers,
TORONTO.

SUMMARY

Of the Estimated Expenditure of the Province of Ontario for the Financial Year ending 31st December, 1903.

No.	SERVICES.	Page.	To be voted. For current expenditure.	To be voted. On capital account.	To be voted. For other purposes.
			$ c.	$ c.	$ c.
I	Civil Government	5	326,443 00		
II	Legislation	11	139,350 00		
III	Administration of Justice	12	465,655 99		
IV	Education	16	922,241 05		
V	Public Institutions Maintenance	21	920,915 00		
VI	Colonization and Immigration	34	14,325 00		
VII	Agriculture	34	282,920 00		
VIII	Hospitals and Charities	39	225,647 88		
IX	Maintenance and Repairs of Government and Departmental Buildings	39	52,750 00		
X	Public Buildings—				
	(1) Repairs	40	27,511 00		
	(2) Capital Account	40	.....	435,690 00	
XI	Public Works—				
	(1) Repairs	45	34,000 00		
	(2) Capital Account	45	.....	54,597 00	
XII	Colonization and Mining Roads	46	.....	.....	145,450 00
XIII	Charges on Crown Lands	50	258,175 00		
XIV	Refunds Account	51	40,105 19		
XV	Miscellaneous Expenditure	52	141,652 75		
XVI	Unforeseen and Unprovided	53	50,000 00		
	Total		3,901,691 86	490,287 00	145,450 00

	$ c.
1. Current Expenditure for 1903	3,901 691 86
2. On Capital Account	490,287 00
3. Other purposes	145,450 00
Amount of Estimates	4,537,428 86

ESTIMATES OF EXPENDITURE

OF THE

PROVINCE OF ONTARIO

FOR THE YEAR

1903.

I. CIVIL GOVERNMENT.

Amount to be voted, $326,443.00.

No. of Vote.	Salaries and Contingencies.	1902.	1903.	Compared with Estimates of 1902. Increase.	Decrease.
1.	Lieutenant-Governor's Office ...	3,805 00	3,890 00	85 00	.....
2.	Attorney-General's Department.	17,800 00	17,450 00	.....	350 00
3.	Education Department.....	20,550 00	21,050 00	500 00	.....
4.	Crown Lands Department.....	69,900 00	70,725 00	825 00	.....
5.	Public Works do	43,670 00	44,850 00	1,180 00	.....
6.	Treasury do	34,375 00	35,800 00	1,425 00	.....
7.	Provincial Secretary's Department	21,050 00	22,378 00	1,328 00	.....
8.	Inspection Public Institutions ..	18,000 00	18 450 00	450 00	.....
9.	Audit License and Justice Accounts	10,150 00	10,100 00	.....	50 00
10.	Registrar-General's Branch.....	14,700 00	14,750 00	50 00	.....
11.	Provincial Board of Health	6,050 00	8,700 00	2,650 00	.....
12.	Department of Agriculture.....	25,760 00	27,550 00	1,790 00	.....
13.	Insurance Branch	8,550 00	8,600 00	50 00	.....
14.	Neglected Children's Branch....	6,100 00	6,600 00	500 00	.....
15.	Miscellaneous	15,100 00	15,550 00	450 00	.....
	Total...	315,560 00	326,443 00	11,283 00	400 00

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	**1903.**
1.	**Lieutenant-Governor's Office.**		
	Official Secretary.....	1,200 00	1,200 00
	Occasional assistance	400 00	400 00
	Stenographer (half time)	225 00	250 00
	Messenger	480 00	540 00
	Contingencies	1,500 00	1,500 00
		3,805 00	3,890 00

I. CIVIL GOVERNMENT.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses.	
2.	**Attorney-General's Department.**	1902.	**1903.**
	Attorney-General	4,000 00	4,000 00
	Clerk of Executive Council and Deputy Attorney-General	3,000 00	3,250 00
	Assistant Clerk of Executive Council	1,650 00	1,700 00
	Law Secretary of Department	800 00	800 00
	Clerk and Attorney-General's Secretary	1,600 00	1,500 00
	Clerk and Assistant	700 00	250 00
	Clerk and Stenographer	1,300 00	1,100 00
	Clerk	1,000 00	1,000 00
	do	750 00	850 00
	Messenger and Caretaker	600 00	600 00
	Contingencies	2,400 00	2,400 00
		17,800 00	17,450 00
3.	**Education Department.**		
	Minister of Education	4,000 00	4,000 00
	Deputy Minister	2,500 00	2,500 00
	Clerk and Minister's Secretary	1,500 00	1,500 00
	Clerk and Accountant	1,350 00	1,350 00
	do	1,350 00	1,350 00
	do	1,200 00	1,200 00
	do	1,100 00	1,100 00
	do	1,200 00	1,200 00
	do	800 00	850 00
	do	750 00	800 00
	do (transferred from Library	800 00	850 00
	do and Stenographer	700 00	700 00
	Stenographer	500 00	550 00
	Caretaker, including offices, museum, etc.	500 00	550 00
	Clerk	500 00	550 00
	Postage	450 00	450 00
	Printing, paper for circulars and blanks	500 00	600 00
	Office stationery and account books	300 00	400 00
	Books, periodicals and contingencies	350 00	350 00
	Travelling and other expenses	200 00	200 00
		20,550 00	21,050 00
4.	**Crown Lands Department.**		
	Commissioner	4,000 00	4,000 00
	Assistant Commissioner	3,000 00	3,000 00
	Law Clerk	2,100 00	2,100 00
	Clerk and Minister's Secretary	1,200 00	1,300 00
	Secretary to Assistant Commissioner	1,000 00	1,000 00
	Land Sales and Free Grants—		
	Chief Clerk	1,900 00	1,900 00
	Clerk	1,300 00	1,350 00
	do	1,050 00	900 00
	do	850 00	900 00
	do Military Grants	.....	1,100 00
	Stenographer	500 00	500 00
	Surveys—		
	Director of	2,200 00	2,200 00
	Draughtsman	1,300 00	1,300 00
	Clerk of Patents and Inspector of Agencies	1,600 00	1,600 00
	Clerk	1,000 00	1,000 00
	do	750 00	800 00
	do	750 00	800 00

I. CIVIL GOVERNMENT.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
4	**Crown Lands Department.**—*Continued.*		
	Woods and Forests—		
	Chief Clerk	1,800 00	1,800 00
	Clerk	1,450 00	1,500 00
	do	1,000 00	1,000 00
	do	900 00	800 00
	do	750 00	750 00
	do	1,000 00	1,000 00
	do	1,100 00	1,150 00
	Accounts Branch—		
	Accountant	1,800 00	1,800 00
	Clerk	1,200 00	1,200 00
	do	1,050 00	1,000 00
	do	800 00	800 00
	Registrar	1,500 00	1,500 00
	Clerk	1,050 00	1,100 00
	Messenger and Caretaker	600 00	600 00
	Contingencies	16,000 00	16,000 00
	Bureau of Mines—		
	Director of Bureau and Secretary Parks	2,350 00	2,400 00
	Secretary	1,000 00	1,100 00
	Clerk and Stenographer	450 00	450 00
	Printing stationery and books	400 00	400 00
	Postage telegrams and contingencies	900 00	900 00
	Advertising and subscriptions	600 00	600 00
	Travelling expenses	1,000 00	1,000 00
	Colonization and Forestry—		
	Director of Colonization and Forestry	1,800 00	1,900 00
	Secretary and Intelligence Officer	1,500 00	.....
	Clerk	.....	650 00
	Clerk and Typewriter	400 00	425 00
	Expenses	500 00	500 00
	Books for office, etc	100 00	100 00
	Contingencies	1,000 00	1,000 00
	Clerk	900 00	950 00
	Constable at Station	500 00	600 00
5	**Public Works Department.**	69,900 00	70,725 00
	Commissioner	4,000 00	4,000 00
	Assistant Commissioner	2,200 00	2,300 00
	Clerk and Minister's Secretary	1,200 00	1,050 00
	Consulting Engineer and Architect	1,500 00	1,500 00
	Engineer	2,100 00	2,100 00
	Architect	1,800 00	1,800 00
	Secretary Public Works	1,000 00	1,000 00
	Accountant and Law Clerk	1,300 00	1,300 00
	Assistant Engineer and Architect	1,500 00	1,500 00
	Assistant Clerk and Paymaster	1,000 00	1,100 00
	Clerk and Stenographer	500 00	500 00
	do do	.....	400 00
	Clerk of Files	450 00	500 00
	Messenger and Caretaker	600 00	600 00
	Contingencies	4,400 00	4,400 00
	Commissioner of Highways Branch—		
	Clerk	800 00	850 00
	Stenographer	400 00	400 00
	Stationery and printing	500 00	500 00
	Travelling expenses and contingencies	1,000 00	1,000 00

I. CIVIL GOVERNMENT.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
5.	**Public Works Department**—*Continued.*		
	Colonization Roads—		
	Superintendent	1,900 00	1,900 00
	Accountant	900 00	950 00
	Clerk	900 00	950 00
	Contingencies	1,000 00	1,000 00
	Fisheries. (Transferred from Miscellaneous.)		
	Deputy Commissioner	2,000 00	2,100 00
	Chief Clerk	1,400 00	1,400 00
	Clerk	800 00	800 00
	do	850 00	850 00
	do and Stenographer	450 00	450 00
	Clerk	400 00	400 00
	Contingencies	1,500 00	1,500 00
	Game Protection. (Transferred from Miscellaneous.)		
	Chief Warden	1,200 00	1,300 00
	Clerk	720 00	800 00
	Contingencies	400 00	600 00
	Labor Bureau. (Transferred from Miscellaneous.)		
	Secretary	1,500 00	1,500 00
	Clerk and Stenographer	450 00	500 00
	Contingencies	1,050 00	1,050 00
		43,670 00	44,850 00
6	**Treasury Department.**		
	Premier and Treasurer	7,000 00	7,000 00
	Assistant Treasurer	2,500 00	2,500 00
	Clerk of Bonds and Algoma Taxes	1,600 00	1,600 00
	First class Clerk	1,200 00	1,250 00
	Second-class Clerk	1,000 00	1,050 00
	Junior Second class Clerk	800 00	800 00
	do	750 00	800 00
	do	600 00	650 00
	do	600 00	600 00
	do	.....	600 00
	Clerk and Bank Messenger	700 00	700 00
	Stenographer	500 00	550 00
	Allowance for Private Secretary	.....	400 00
	Messenger (general) (included in contingencies, 1902)	300 00	250 00
	Contingencies	4,100 00	3,700 00
	Succession Duties Branch. (Transferred from Miscellaneous)—		
	Solicitor under Succession Duties Act	2,400 00	2,200 00
	Second-class Clerk	800 00	800 00
	Stenographer	.....	400 00
	Contingencies	400 00	400 00
	Provincial Auditor's Office.		
	Provincial Auditor	2,500 00	2,500 00
	Assistant do	1,500 00	1,550 00
	Chief Clerk	1,575 00	1,600 00
	First Class Clerk	1,300 00	1,300 00
	Second Class Clerk	850 00	900 00
	Junior Second Class Clerk	.....	750 00
	Messenger (Paid from Contingencies 1902)	300 00	350 00

I. CIVIL GOVERNMENT.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
6.	**Treasury Department.**—*Continued.*		
	Provincial Auditor's Office.—Continued.		
	Extra Clerks *re* Public Accounts	500 00	200 00
	Contingencies	600 00	400 00
		34,375 00	35,800 00
7.	**Provincial Secretary's Department**		
	Secretary and Registrar	4 000 00	4,000 00
	Assistant Secretary	2,500 00	2,500 00
	Deputy Registrar	1,400 00	1.400 00
	First-Class Clerk	1,300 00	1,350 00
	do	1,200 00	1,300 00
	do	1,100 00	1,150 00
	Second-Class Clerk	900 00	950 00
	do	850 00	900 00
	do	800 00	800 00
	Junior Second-Class Clerk	700 00	750 00
	Stenographer	550 00	550 00
	do	500 00	550 00
	Allowance for Minister's Secretary	400 00	400 00
	Junior Clerks (2)		728 00
	Messenger and Caretaker	600 00	600 00
	Printing and binding, including Marriage licenses, Joint Stock Company forms, etc	1,650 00	1 650 00
	Stationery, postage and contingencies	2,600 00	2,800 00
		21,050 00	22 378 00
8.	**Inspection Public Institutions**		
	Inspector of Asylums	2.600 00	2,600 00
	do Prisons and Charities	2,500 00	2.500 00
	do Central Prison and Reformatories	2.400 00	2,400 00
	First Class Clerk	1,300 00	1,350 00
	do do	1.200 00	1,200 00
	do do	1,150 00	1.200 00
	Second Class Clerk	1,050 00	1,100 00
	do do	900 00	1,000 00
	Junior Second Class Clerk	700 00	750 00
	Stenographer	300 00	350 00
	Caretaker and Messenger	550 00	600 00
	Travelling expenses of Inspectors	1 400 00	1,400 00
	Printing, stationery, postage and contingencies	1,950 00	2,000 00
		18,000 00	18,450 00
9.	**License Branch and Audit Justice Accounts**		
	Chief Officer License Branch	2,000 00	2,000 00
	Provincial Inspector	2 000 00	2,000 00
	Inspector Criminal Justice Accounts	1.600 00	1,600 00
	First Class Clerk	1,400 00	1,500 00
	Second Class Clerk	1,200 00	950 00
	Junior Second Class Clerk	800 00	700 00
	do do do	500 00	700 00
	Stationery, postage and contingencies	650 00	650 00
		10,150 00	10,100 00

I. CIVIL GOVERNMENT.— *Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
10.	**Registrar General's Branch**		
	Deputy Registrar-General and Secretary Board of Health..	2,600 00	2,600 00
	Inspector District Registrar's Office	1,200 00	1,250 00
	Second Class Clerk	1,000 00	1,050 00
	do	950 00	1,000 00
	do	900 00	900 00
	do	900 00	900 00
	do	900 00	900 00
	do	800 00	800 00
	Stenographer	500 00	500 00
	Messenger	550 00	450 00
	For supply of blank forms to postmaster and Indices	500 00	500 00
	Printing and stationery	1,800 00	1,800 00
	Postage and contingencies	900 00	900 00
	Travelling expenses inspecting District Registrars	500 00	500 00
	Temporary services	300 00	300 00
	District Registrar's fees	400 00	400 00
		14,700 00	14,750 00
11.	**Provincial Board of Health**		
	Chairman	400 00	400 00
	Medical Inspector	.....	2,000 00
	Provincial Analyst in charge of Laboratory	1,400 00	1,500 00
	Clerk	900 00	950 00
	Clerk and Stenographer	550 00	600 00
	Messenger	300 00	450 00
	Printing, binding, stationery and sanitary literature	1,000 00	1,000 00
	Per diem allowance of members of Board	700 00	700 00
	Rent of offices, sanitary analyses	200 00	500 00
	Travelling expenses of Members of Board and Secretary	600 00	600 00
		6,050 00	8,700 00
12	**Department of Agriculture.**		
	Minister	4,000 00	4,000 00
	Deputy Minister	2,500 00	2,500 00
	Assistant Secretary	1,700 00	1,700 00
	Chief Clerk	1,450 00	1,500 00
	Second Class Clerk	1,100 00	1,150 00
	do	1,000 00	1,050 00
	do	1,000 00	1,050 00
	do	1,000 00	1,050 00
	do	1,000 00	1,050 00
	do	1,000 00	1,000 00
	do	900 00	900 00
	do	.....	900 00
	Junior Second Class Clerk	550 00	600 00
	Allowance for Minister's Secretary	300 00	400 00
	Messenger and Caretaker	600 00	600 00
	Contingencies	1,460 00	1,300 00
	(Factory Inspection transferred from Miscellaneous).		
	Five Inspectors (four last year)	4,000 00	4,600 00
	Contingencies	2,200 00	2,200 00
		25,760 00	27,550 00

I. CIVIL GOVERNMENT.—*Concluded.* II. LEGISLATION.

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
13.	**Insurance Branch**		
	Inspector of Insurance, and Registrar of Friendly Societies and Loan Companies	3,000 00	3,000 00
	Assistant Registrar of Friendly Societies	1,200 00	1,200 00
	Clerk	900 00	900 00
	Clerk (heretofore paid out of Contingencies)		800 00
	Stenographer	450 00	500 00
	Printing, blank returns and forms	1,100 00	1,100 00
	Travelling expenses, books, postage, stationery, etc	1,900 00	1,100 00
	NOTE.—Receipts from Insurance and Loan Corporations and Friendly Societies for the year ending 31st December, 1902, $28,830.75.	8,550 00	8,600 00
14	**Neglected Children's Branch**		
	Superintendent and Inspector	1,500 00	1,600 00
	Additional Inspector	900 00	1,000 00
	Travelling expenses, record books and contingencies	1,000 00	1,000 00
	Clerk and Stenographer	450 00	450 00
	Clerk and Messenger	.....	250 00
	Special literature	200 00	200 00
	Children's Visitor	650 00	700 00
	Travelling expenses	1,400 00	1,400 00
15		6,100 00	6,600 00
	Miscellaneous		
	King's Printer	1,400 00	1,400 00
	Assistant King's Printer	950 00	1,000 00
	Chief Clerk	1,000 00	1,000 00
	Cost of Official Gazette	5,000 00	5,000 00
	Contingencies, including stationery, postage, etc	100 00	100 00
	Messenger Executive Council	.....	400 00
	Inspector of Registry Offices	1,750 00	1,750 00
	Travelling and other expenses	500 00	500 00
	Municipal Auditor (*Transferred from Miscellaneous*)	2,000 00	2,000 00
	Travelling and other expenses do do	600 00	600 00
	Clerk for special services re investigations	1,800 00	1,800 00
		15,100 00	15,550 00
16	**II. LEGISLATION.**		
	Amount to be voted $139,350.00.		
	Mr. Speaker's salary	2,000 00	2,000 00
	Clerk of the House	2,000 00	2,000 00
	Clerk Assistant and Clerk of Routine	1,500 00	1,500 00
	Law Clerk	1,200 00	1,200 00
	Postmaster	1,100 00	1,200 00
	Assistant Postmaster	.....	600 00
	Librarian	1,800 00	1,800 00
	Assistant Librarian	950 00	1,000 00
	do for annexes	500 00	500 00
	Accountant of the House (also King's Printer)	400 00	400 00

II. LEGISLATION.—*Concluded.* III. ADMINISTRATION OF JUSTICE.

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
16.	**Legislation** —*Concluded.*		
	Sergeant-at-arms	1,000 00	1,000 00
	Housekeeper and Chief Messenger	900 00	900 00
	House Messengers (5)	2,750 00	2,750 00
	Clerks of Committees, Secretary of the Speaker and Leader of the Opposition	5,200 00	5,200 00
	Sessional Writers, Messengers, Elevator men and Pages	6.000 00	6,000 00
	Postage and cost of House Post Office	1,500 00	1 500 00
	Stationery, including printing paper, and printing and binding	34,000 00	34,000 00
	Printing Bills and distributing Statutes	2,000 00	2,000 00
	Library, for books and binding, etc	3,000 00	3 500 00
	Indemnity to members including mileage	60,000 00	65,000 00
	Subscriptions to newspapers and periodicals	1,000 00	1,000 00
	Contingencies	4,300 00	4,300 00
		133,100 00	139,350 00

17 III. ADMINISTRATION OF JUSTICE.

Amount to be voted $465,655.99.

Supreme Court of Judicature —		
Allowance to Judges under R.S.O., cap. 52	15,000 00	15,000 00
Registrar Supreme Court and Court of Appeal	2,000 00	2,000 00
Contingencies, printing, etc.	75 00	75 00
Master-in-Chambers	3,400 00	3,400 00
Clerk	1,600 00	1,600 00
Assistant Clerk	800 00	1,000 00
Entering Clerk	600 00	600 00
Contingencies	400 00	400 00
Master-in-Ordinary	4,000 00	4,000 00
Chief Clerk and Accountant	2,000 00	2,000 00
Clerk and Stenographer	1,300 00	1,300 00
Contingencies	300 00	200 00
Senior Taxing Officer	2,050 00	2,150 00
Junior Taxing Officer	1,700 00	1,700 00
Judge's Library	500 00	500 00
Court of Appeal—		
Clerk	1,200 00	1,200 00
Usher and Messenger	750 00	750 00
Contingencies	500 00	500 00
Secretary to Judges	800 00	800 00
do (*arrears of salary—1901*)	334 00	.....
High Court—		
Clerk of the Process	1,400 00	1.400 00
Printing Writs, Forms, etc	300 00	300 00
Contingencies	50 00	50 00
Clerk of Assize	1,200 00	1,200 00
Contingencies	50 00	50 00
Central Office—		
Clerk of the Crown	2,500 00	2,500 00
Clerk of Records and Writs	1,500 00	1,500 00
Senior Clerk	1,300 00	1,150 00
Clerk	1,400 00	1,400 00
do	1,000 00	1,000 00

III. ADMINISTRATION OF JUSTICE.—*Continued*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
17	**Administration of Justice.**—*Continued*		
	Clerk	1,000 00	1,100 00
	do	950 00	800 00
	do	700 00	700 00
	do	750 00	800 00
	do	750 00	750 00
	Messenger	275 00	300 00
	Housekeeper and Messenger	650 00	700 00
	Two assistants	648 00	648 00
	Messenger	575 00	575 00
	Housekeeper	350 00	350 00
	Assistant Housekeeper	400 00	400 00
	Contingencies	1,020 00	1 020 00
	Registrar's Office—		
	Senior Registrar	2,100 00	2,100 00
	Junior Registrar	2,000 00	2,000 00
	Clerk	1,200 00	1,200 00
	do	1,200 00	1,500 00
	Usher and Stenographer to Judges	800 00	800 00
	do	600 00	600 00
	do and Stenographer	600 00	600 00
	Contingencies	400 00	400 00
	Weekly Court—		
	Clerk of Weekly Court	1,750 00	1,750 00
	Contingencies	50 00	50 00
	Surrogate Court, Surrogate Judges, Local Masters, etc.—		
	Surrogate Clerk	2,000 00	2,000 00
	do	750 00	800 00
	Stenographer, half time	225 00	225 00
	Contingencies	250 00	250 00
	Judges of Surrogate upon commutation of fees	10,083 00	9,083 00
	Local Masters upon commutation of their fees	10,477 00	11,450 00
	Allowance to Crown Attorney, Toronto, upon commutation of fees (63 Vic., chap. 17)	3,500 00	3,500 00
	Division Courts—		
	Inspector	1 800 00	1,800 00
	Assistant Inspector	1,200 00	1,300 00
	Clerk	1,050 00	1,050 00
	do		500 00
	Travelling expenses and contingencies	1,200 00	1,000 00
	Deputy Clerks of the Crown	17,550 00	17,550 00
	do do as Local Registrars	6,625 00	6,875 00
	Land Titles Office—		
	Master of Titles	3,000 00	3,000 00
	Chief Clerk	1,000 00	1,000 00
	Clerk	900 00	900 00
	do		750 00
	Registration and Index books	75 00	100 00
	Stationery and contingencies	75 00	75 00
	Shelves and fittings	200 00	300 00
	Master at Sault Ste. Marie	632 85	758 10
	do Parry Sound	487 70	428 10
	do Bracebridge	306 80	342 70
	do Port Arthur	416 00	106 60
	do North Bay	296 75	693 25
	do Rat Portage	989 20	908 60
	do Gore Bay	100 00	50 00
	do Ottawa	33 00	

III. ADMINISTRATION OF JUSTICE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
17	**Administration of Justice.**—*Continued.*		
	Land Titles Office—Continued.		
	Registry and Index books	300 00	300 00
	Forms and other contingencies	400 00	400 00
	Travelling expenses	200 00	200 00
	Rent of office at Sault Ste. Marie for Local Master	87 64	87 64
	Books for Southern Division, Rainy River	.....	200 00
	Transfer Registrations into Southern Division Books	.....	1,000 00
	Drainage Trials Act—		
	Salary of Referee	2,000 00	2,000 00
	Stenographer	900 00	900 00
	Contingencies	600 00	600 00
		138,486 94	141,350 99
	Criminal Justice, District of Algoma—		
	Sheriff's salary	1,400 00	1,400 00
	Registrar's salary	800 00	800 00
	Clerk of the Peace and District Attorney	400 00	400 00
	Clerk of the District Court	600 00	600 00
	Magistrate at Sudbury	1,400 00	1,400 00
	Magistrate at Michipicoten, etc	900 00	900 00
	Travelling expenses of Police Magistrate	300 00	300 00
	Administration of Justice, etc	12,400 00	14,000 00
		18,200 00	19,400 00
	District of Thunder Bay—		
	Sheriff's salary	1,000 00	1,000 00
	House, fuel and light	250 00	250 00
	Clerk of the District Court	450 00	450 00
	Chief Constable	400 00	400 00
	Police Magistrate at Fort William and West, including expenses	1 000 00	1,000 00
	Police Magistrate at Port Arthur and East, including expenses	1,000 00	1,000 00
	Clerk of the Peace and District Attorney	250 00	250 00
	Administration of Justice, etc	8,000 00	8,000 00
		12,350 00	12,350 00
	District of Rainy River—	1,000 00	1,000 00
	Sheriff's salary	700 00	700 00
	Registrar and Clerk of District Court	250 00	250 00
	Clerk of the Peace and District Attorney	750 00	750 00
	Police Magistrate	800 00	800 00
	Police Magistrate for Mining Districts	300 00	300 00
	Travelling expenses	10,000 00	10,000 00
	Administration of Justice	13,800 00	13,800 00
	District of Nipissing—		
	Sheriff's salary	750 00	750 00
	Clerk of the Peace and District Attorney	250 00	250 00
	Clerk of District Court	450 00	450 00
	Stipendiary Magistrate for Southern Nipissing, salary	1,600 00	1,600 00
	Stipendiary Magistrate for Northern Nipissing salary	750 00	750 00
	Administration of Justice, etc	8,000 00	8,000 00
	Salary and expenses of Special Constable	500 00	500 00
	Police Magistrate, Temiskaming Railway and settlements	750 00	750 00
	" " to cover travelling expenses	350 00	350 00
		13,400 00	13,400 00

III. ADMINISTRATION OF JUSTICE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
17	**Administration of Justice.**—*Continued.*		
	District of Muskoka—		
	Sheriff's salary	500 00	500 00
	Clerk of the Peace and District Attorney	250 00	250 00
	Clerk of the District Court	450 00	450 00
	Police Magistrate's salary and travelling expenses	500 00	500 00
	Administration of Justice	7,250 00	7,250 00
		8,950 00	8,950 00
	District of Parry Sound—		
	Sheriff's salary	500 00	500 00
	Police Magistrate	600 00	600 00
	Clerk of the Peace and District Attorney	250 00	250 00
	Clerk of the District Court	450 00	450 00
	Administration of Justice	7,250 00	7,250 00
		9,050 00	9,050 00
	Provisional County of Haliburton—		
	Police Magistrate for Haliburton and points north, including expenses	800 00	800 00
	Registrar of Deeds	200 00	200 00
	Administration of Justice	250 00	250 00
		1,250 00	1,250 00
	District of Manitoulin—		
	Sheriff	500 00	500 00
	Clerk of the Peace and District Attorney	250 00	250 00
	Salary of Registrar of Deeds and Master of Titles	600 00	600 00
	Salary of Clerk of District Court and Surrogate Court	400 00	450 00
	Administration of Justice	3,000 00	5,000 00
		4,750 00	6,800 00
	Provincial Police on Niagara and Detroit Rivers—		
	Salary of Police Magistrate—Niagara River	1,200 00	1,200 00
	Administration of Justice	7,000 00	7,100 00
	Administration of Justice—Detroit River	3,400 00	3,500 00
		11,600 00	11,800 00
	Miscellaneous Justice—		
	Crown Counsel prosecutions	8,000 00	8,000 00
	Administration of Criminal Justice	175,000 00	170 000 00
	Inspector of Legal Offices	2,400 00	2,400 00
	Clerk and Stenographer	1,100 00	1,200 00
	Travelling and other expenses	700 00	700 00
	Salaries of Inspectors of Criminal Investigation	4,300 00	4,550 00
	Accident insurance policies for the inspectors	105 00	105 00
	Costs of Magistrates Rex. v. Gagnon	107 00	.....
	Special services	2,000 00	2,000 00
	To pay Sheriffs, Criers and Constables in attending Courts of Assize, Chancery and County Courts, Deputy Clerks of the Crown and Pleas attending Assizes, and their postages, etc.	7,500 00	7,500 00
	Seals and other contingencies	300 00	300 00
	Litigation of constitutional questions	5,000 00	5,000 00
	Expenses of County Judges in grouped counties	1,200 00	1,200 00
	Judges travelling expenses *re* Ditches and Watercourses Act	500 00	500 00
	Shorthand Reporters at the Assizes and Election Courts	10,700 00	11,300 00

III. ADMINISTRATION OF JUSTICE.—*Concluded.* EDUCATION.

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
17	**Administration of Justice** —*Concluded*		
	Miscellaneous Justice.—Continued.		
	County Law Libraries (Circuit and County Judges)....	1,200 00	1,200 00
	Expenses incident to weekly court at London and Ottawa	100 00	100 00
		220,212 00	216,055 00
	Osgoode Hall Maintenance ; (Transferred from Repairs and Maintenance.)		
	Fuel and light	5,000 00	5,000 00
	Salaries of Engineer, Fireman and Caretaker	1,480 00	1,480 00
	New steps and railing to main entrance	500 00	500 00
	Water	2,000 00	2,500 00
	Furniture and Incidentals		470 00
	Fittings for vaults accounts, Branch and Registrar office		1,000 00
	Appliances for fire protection, hose, etc		500 00
		8,980 00	11,450 00
		461,028 94	465,655 99

IV. EDUCATION.

Amount to be voted $922,241.05.

18	Public and Separate School Education	490,049 87	497,956 81
19.	High Schools and Collegiate Institutes	120,375 00	127,175 00
20	Departmental Library and Museum	7,250 00	7,250 00
21.	School of Practical Science	34,275 00	39,875 00
22.	Public Libraries, Art Schools, Literary and Scientific	61,100 00	65,000 00
23	Technical Education	15,000 00	20,000 00
24.	Provincial University and Mining Schools	75,394 62	88,584 24
25.	Maintenance Education Department and Miscellaneous	11,850 00	13,100 00
26.	Superannuated Public and High School Teachers	61 300 00	63,300 00
18	**Public and Separate School Education (Details**	876,567 49	922 241 05
	Aid from Municipalities' Fund	2,879 87	4 276 81
	Public and Separate Schools, old districts	240,000 00	240,000 00
	Public and Separate Schools, new districts (including Poor Schools	55,000 00	58,000 00
	Kindergarten Schools	3,250 00	3 250 00
	Night Schools	500 00	250 00
	Continuation Classes	20,000 00	20 000 00
	Sixty-two Model Schools (including reference books)	10,350 00	10 000 00
	French-English Training Schools	800 00	800 00
	Teachers' Associations	3,400 00	3 000 00
	Inspection of Public and District Schools	45,220 00	47,300 00
	Inspection of Separate Schools	5,400 00	5,100 00
	Inspection of Bilingual Schools	1,500 00	1,500 00
	Inspection of Model Schools	1,850 00	1,850 00
	Travelling expenses, Inspectors	3,000 00	3,200 00
	Stationery, postage and incidentals	1,400 00	1,400 00
	Examiners for Departmental Examinations	21,000 00	21,000 00
	Paper, postage and supplies for Examiners and Assistant	2,500 00	2,500 00
	Clerk	900 00	950 00
	Printer	700 00	850 00
	Clerk	800 00	800 00
	Secretary Board of Examiners	500 00	500 00

EDUCATION.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902	1903.
18.	**Public and Separate School Education.**—*Con.*		
	Registrar Education Department	1,750 00	1,750 00
	Stenographer	500 00	500 00
	Normal and Model Schools, Toronto. Details (a)	25,400 00	25 270 00
	Normal and Model Schools, Ottawa. Details (b)	28.400 00	30.110 00
	Normal and Model Schools, London. Details (c)	13.050 00	13,800 00
		490,049 87	497,956 81
	(a) Normal and Model Schools, Toronto		
	The Principal	2,450 00	2,500 00
	The Vice-Principal	1,900 00	1,950 00
	Drawing Master	1,000 00	1,000 00
	French Master	3 0 00	300 00
	Music Master	1,000 00	1,000 00
	Head Master of Model School	1,600 00	1,600 00
	Four assistants of Boys' Model School	4,100 00	4,100 00
	Head Mistress of Girl's Model School	1,000 00	1,000 00
	Four assistants of Girls' Model School	3,400 00	2 900 00
	Instructor in Calisthenics for Girls' Model School	500 00	500 00
	Instructor in Domestic Science	400 00	400 00
	Director of Kindergarten	1,000 00	1,000 00
	Assistant-Director of Kindergarten	480 00	550 00
	Head Gardener	600 00	600 00
	Assistant-Gardener	400 00	450 00
	First Engineer	700 00	750 00
	Second Engineer	450 00	500 00
	Laborer, on grounds	400 00	400 00
	Janitor of Normal School (including cleaning)	510 00	510 00
	Janitor of Boys' Model School (including cleaning)	400 00	450 00
	Janitor Girls' Model School (including cleaning)	360 00	360 00
	Reference Books and Pictures	200 00	200 00
	Stationery, chemicals and contingencies	1 000 00	1,000 00
	Text books for Model School pupils	600 00	600 00
	Supplies for Kindergarten	150 00	150 00
	Domestic and Sanitary Science and supplies	500 00	500 00
		25,400 00	25,270 00
	(b) Normal and Model Schools, Ottawa		
	The Principal	2,500 00	2,300 00
	Vice-Principal	2,000 00	2 000 00
	Drawing Master	900 00	900 00
	French Master	600 00	600 00
	Music Master	1,000 00	1 000 00
	Head Master of Boys' Model School	1 500 00	1,500 00
	Three assistants of Boys' Model School	3,250 00	3 050 00
	Head Mistress of Girls' Model School	1 200 00	1,000 00
	Three Assistants of Girls' Model School	2.500 00	2.350 00
	Instructor of Calistherics for Girls' Model School	600 00	650 00
	Director of Kindergarten	1,000 00	1 000 00
	Assistant Director of Kindergarten	480 00	550 00
	First Engineer and Gardener	650 00	650 00
	Second Engineer and Gardener	500 00	500 00
	Laborer on grounds	400 00	400 00
	Janitor Normal School (including cleaning)	510 00	5 0 00

IV. EDUCATION.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
18.	**Normal and Model Schools, Ottawa**—*Con*		
	Caretaker	760 00	760 00
	Night Watchman	400 00	400 00
	Reference books for Masters and Students	200 00	200 00
	Stationery, chemicals and supplies	1,000 00	1,000 00
	Text books for Model School pupils	600 00	600 00
	Supplies for Kindergarten	150 00	150 00
	Domestic and Sanitary Science and supplies	800 00	800 00
	MAINTENANCE.		
	(Transferred from Repairs and Maintenance.)		
	Expenses of grounds	400 00	400 00
	Fuel and light (Part revote)	2,000 00	4,000 00
	Water	1,000 00	1,000 00
	Furniture, incidentals, snow cleaning, etc	1,500 00	1,800 00
	Normal and Model Schools, London.	28,400 00	30,110 00
	The Principal	2,450 00	2,500 00
	The Vice-Principal	1,850 00	1,900 00
	Drawing and Writing Master	200 00	200 00
	Music Master	200 00	200 00
	Kindergarten Teacher	100 00	100 00
	Drill, Gymnastics and Calisthenics	150 00	150 00
	Stenographer and Clerk	400 00	450 00
	Engineer	600 00	600 00
	Caretaker	600 00	400 00
	Gardener	500 00	500 00
	Stationery, Apparatus, chemicals and supplies	1,200 00	1,200 00
	Reference books for Masters and Students	400 00	400 00
	Payment to London School Board	1,500 00	1,500 00
	MAINTENANCE.		
	(Transferred from Repairs and Maintenance.)		
	Fuel, light, etc	2,000 00	2,000 00
	Water	500 00	500 00
	Furniture for Domestic Science, etc	.....	500 00
	Expenses of grounds, trees, etc	400 00	700 00
19.	**High Schools and Collegiate Institutes.**	13,050 00	13,800 00
	High Schools and Collegiate Institutes, including districts	102,000 00	107,000 00
	Two Inspectors of High Schools	5,500 00	5,500 00
	Travelling expenses	800 00	800 00
	Stationery, postage and incidentals	800 00	800 00
	Principal Ontario Normal College	3,000 00	3,000 00
	Vice-Principal	500 00	500 00
	Clerical Services	225 00	225 00
	Printing and examinations	1,000 00	1,000 00
	Grant to Normal College	4,000 00	4,500 00
	Contingencies and Library	350 00	350 00
	Military instruction	1,200 00	2,500 00
	For special services, partly arrears	1,000 00	1,000 00
		120,375 00	127,175 00

EDUCATION.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
20.	**Departmental Library and Museum.**		
	Librarian and Historiographer	2,000 00	2,000 00
	Curator of Museum	1,100 00	1,100 00
	Assistant Librarian	550 00	550 00
	Postage and stationery	100 00	100 00
	Incidentals and purchases	650 00	650 00
	Binding books and periodicals	200 00	200 00
	Educational and technical books for reference	500 00	500 00
	Binding pamphlets, Library	200 00	200 00
	Museum Archæological researches and Collections	1,950 00	1,950 00
		7,250 00	7,250 00
21.	**School of Practical Science.**		
	Professor in Engineering and Principal	3,200 00	3,200 00
	do Geology	.....	2,000 00
	do Applied Chemistry	1,500 00	1,600 00
	do Surveying	1,800 00	1,900 00
	do Architecture	1,800 00	1,900 00
	do Electrical Engineering	1,800 00	1,900 00
	Lecturer in Applied Mechanics	1,300 00	1,200 00
	do Mining	1,200 00	1,300 00
	do Mechanical Engineering	1,200 00	1,300 00
	do Analytical Chemistry	850 00	1,200 00
	Demonstrator in *Surveying*	750 00	
	do Chemical Engineering	700 00	
	do Mechanical	700 00	800 00
	do Electrical	800 00	800 00
	Nine Fellows	4,500 00	4,500 00
	Attendant in Chemistry	500 00	600 00
	do Metallurgy	350 00	350 00
	Caretaker	750 00	750 00
	Attendant in drafting room	.....	300 00
	Attendant in Mining	200 00	240 00
	Registrar and Librarian	400 00	1,200 00
	Stenographer	.....	260 00
	Messenger	.....	150 00
	Engineer	800 00	800 00
	Fireman and stoker	450 00	450 00
	Chemical Laboratory	800 00	900 00
	Electrical do	300 00	400 00
	Assaying do	400 00	500 00
	Engineering do	500 00	500 00
	Surveying do	200 00	300 00
	Architecture do	400 00	400 00
	Printing, advertising and incidentals	2,000 00	2,500 00
	MAINTENANCE. (Transferred from Repairs and Maintenance.)		
	Gas	350 00	350 00
	Fuel	1,400 00	1,400 00
	Water	250 00	250 00
	Electrical current for power	200 00	250 00
	Furniture and incidentals	1,000 00	1,000 00
	Ground rent	925 00	925 00
	General repairs, drains, walks, etc	.....	1,200 00
	Drafting tables	.....	300 00
		34,275 00	39,875 00

EDUCATION.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
22.	**Public Libraries Art Schools, Literary and Scientific**		
	Superintendent Public Libraries	1,700 00	1,700 00
	Clerk do	800 00	800 00
	480 Public Libraries	48,000 00	50,000 00
	Travelling libraries for remote and rural sections	2,000 00	4,000 00
	Art Schools, Examinations and Museum Expenses	3,200 00	2,800 00
	Ontario Society of Artists	800 00	800 00
	Canadian Institute, Toronto	1,500 00	1,500 00
	Institut Canadien, Ottawa	400 00	400 00
	Ottawa Field Naturalists and other Scientific Societies	800 00	800 00
	Hamilton Scientific Association	400 00	400 00
	Astronomical Society, Toronto	300 00	300 00
	Provincial Historical Association	600 00	600 00
	Lundy's Lane Historical Society	400 00	400 00
	Branch Associations	200 00	500 00
		61,100 00	65,000 00
23.	**Technical Education**		
	Technical Education, including grants, inspection, equipment, books, printing and other expenses	15,000 00	20,000 00
24.	**Provincial University and Mining Schools**		
	University College—Ladies Department	550 00	600 00
	Agricultural Examination—University Degree B.S.A	425 00	425 00
	Printing University Historical, Economic and other papers	600 00	600 00
	Statutory Grant to University (60 Vic., cap. 59)	7,000 00	7,000 00
	Grant from the sale of lands	2,874 87	2,014 76
	University of Toronto—(Sec. 16, cap. 41, Edw. VII)	40,444 75	36,334 00
	" " estimated deficit	.....	18,110 48
	School of Mining, Kingston (transferred from Charges Crown Lands)	23,500 00	23,500 00
		75,394 62	88,584 24
25.	**Maintenance Education Department and Miscellaneous**		
	Furniture and furnishings. (Trans. from Reprs. and Main'ce)	600 00	600 00
	Expenses of grounds do	1,000 00	1,000 00
	Fuel and light do	3,000 00	3,500 00
	Water do	1,000 00	1,000 00
	Repairs etc do	1,600 00	1,950 00
	Carpenter do	600 00	600 00
	For proportion of cost of Minister's Report	1,000 00	1,000 00
	High and Public School Registers	1,500 00	1,500 00
	Printing Documentary History of Education	850 00	850 00
	Supplying School Act to Trustees and contingencies	700 00	700 00
	Special investigation, Windsor	.....	400 00
		11,850 00	13,100 00

EDUCATION.—*Concluded.* PUBLIC INSTITUTIONS MAINTENANCE.

No. of Vote.	SERVICE.	Salaries and Expenses.	
26	**Superannuated Teachers**	1902.	**1903.**
	Annual retiring allowance to Teachers and Inspectors.....	61,000 00	63,000 00
	Medical examination fees, printing, paper and incidentals ..	300 00	300 00
		61,300 00	63,300 00

V. PUBLIC INSTITUTIONS MAINTENANCE.

Amount to be voted, $920,915 00.

27.	Asylum for Insane, Toronto	$101,729 00	$106,327 00
28	" London	128,018 00	135,352 00
29.	" Kingston	76,546 00	81,550 00
30.	" Hamilton	125,017 00	128,518 00
31.	" Mimico	75,558 00	81,870 00
32.	" Brockville	76,713 00	84,293 00
33.	Asylum for Female Patients, Cobourg	30,858 00	27,630 00
34.	Asylum for Feeble Minded, Orillia	62,718 00	71,622 00
35.	Central Prison, Toronto	62,450 00	63,200 00
36.	Ontario Reformatory for Boys, Penetanguishene	26,550 00	28,250 00
37	Institution for the Deaf and Dumb, Belleville	45,384 00	49,491 00
38.	Blind Institute, Brantford	32,851 00	32,903 00
39.	Andrew Mercer Reformatory for Females and Refuge for Girls, Toronto	26 075 00	29,909 00
27.	**Asylum for Insane, Toronto** (730 patients.)	870,467 00	920,915 00
	Salaries.		
	Medical Superintendent	2,000 00	2,000 00
	Assistant Superintendent	1,100 00	1,200 00
	Second Assistant	800 00	1,000 00
	Bursar (besides allowance for rent)	1 400 00	1,400 00
	Bursar's Clerk	900 00	900 00
	Steward	750 00	750 00
	Storekeeper (including $200 allowance for rent)	1,000 00	1,000 00
	Engineer (including $100 allowance for rent)	840 00	840 00
	Stokers (3)	900 00	964 00
	Engine-driver for laundry	300 00	360 00
	Bricklayer and Mason	625 00	625 00
	Carpenters (2)	1,150 00	1,150 00
	Gardener (including $100 allowance for rent)	500 00	532 00
	Assistant Gardener	300 00	400 00
	Porter	276 00	276 00
	Baker	450 00	450 00
	Assistant Baker	250 00	250 00
	Tailor	550 00	550 00
	Teamster	240 00	240 00
	Night Watchers (4)	1,008 00	1,032 00
	Supervisors (8)	2,400 00	2,436 00
	Chief Attendants (2)	736 00	736 00
	Ordinary Male Attendants (23)	4 356 00	5,604 00
	Painter and Jobber	575 00	575 00
	Attendant Tradesman	550 00	550 00

V. PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	**1903.**
27	**Asylum for Insane, Toronto.**—*Continued.*		
	Salaries.—Continued.		
	Portress and Typewriter	175 00	175 00
	Matron	500 00	500 00
	Assistant Matron	300 00	300 00
	Supervisors (8)	1,068 00	1,392 00
	Ordinary Attendants (20)	3,180 00	3 000 00
	Night Attendants (4)	600 00	600 00
	Trained Nurse	240 00	240 00
	Musical Instructress	240 00	240 00
	Cooks (6)	828 00	828 00
	Laundresses (7)	768 00	1,008 00
	Housemaids (3)	360 00	360 00
	Seamstresses	144 00	144 00
	Dairymaid	120 00	120 00
	Expenses.	32,529 00	34,727 00
	Medicine and medical comforts	800 00	800 00
	Fuel	9,000 00	10,500 00
	Butchers' meat, fish and fowl	16,000 00	16,000 00
	Flour, meal, etc	4,400 00	4,000 00
	Butter	5 000 00	5,700 00
	Gas and oil	4 000 00	3,600 00
	Water supply	3,500 00	3,500 00
	Groceries	8,500 00	8,700 00
	Fruit and vegetables	2,400 00	2,600 00
	Bedding, clothing and shoes	4,500 00	4,500 00
	Furniture and furnishings	1,500 00	1,500 00
	Laundry, soap and cleaning	1,400 00	1 400 00
	Farm and garden	550 00	550 00
	Feed and fodder	2,350 00	3,350 00
	Miscellaneous	1,500 00	1,500 00
	Repairs and alterations	3,000 00	2,500 00
	Printing, postage and stationery	800 00	900 00
		101,729 00	106,327 00
28	**Asylum for the Insane, London** (Details.)		
	(1,080 patients.)		
	Salaries.		
	Medical Superintendent	2 000 00	2,000 00
	First Assistant Physician	1 100 00	1,200 00
	Second Assistant Physician	1,000 00	1,050 00
	Third Assistant Physician	900 00	900 00
	Bursar	1,400 00	1,400 00
	Bursar's Clerk (including allowance for rent)	800 00	800 00
	Storekeeper (including allowance for rent)	1,000 00	1,000 00
	Assistant Storekeeper	600 00	600 00
	Engineer	740 00	740 00
	Assistant Engineer	400 00	400 00
	Second Assistant Engineer (including allowance for rent)	420 00	420 00
	Stokers (7)	1,776 00	1,800 00
	Bricklayer and Plasterer	600 00	600 00
	Carpenters (2)	1,050 00	1,050 00

V. PUBLIC INSTITUTIONS' MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses.	
28	**Asylum for the Insane, London** —*Concluded.*	1902.	**1903.**
	Salaries.—Concluded.		
	Tailor	460 00	460 00
	Painter (heretofore included with attendants)	420 00	420 00
	Gardener	500 00	500 00
	Assistant Gardener	300 00	300 00
	Sewage-man	384 00	384 00
	Butcher (without board)	360 00	360 00
	Yardman	216 00	216 00
	Porter and Messenger	216 00	216 00
	Baker	300 00	300 00
	Assistant Baker	216 00	216 00
	Farmer	650 00	650 00
	Ploughmen (2)	672 00	456 00
	Farm Night Watchman	.....	240 00
	Chief Attendants (3)	976 00	1,012 00
	Supervisors (rent allowances added) (7)	2,016 00	2,100 00
	Ordinary Male Attendants (29)	7,226 00	7,152 00
	Bandmaster and Supervisor	300 00	300 00
	Cowman and Dairyman	216 00	216 00
	Laundryman	300 00	300 00
	Shoemaker	300 00	300 00
	Matron	500 00	500 00
	Assistant Matron	300 00	300 00
	Chief Attendant Trained Nurse Supervisors (8) Ordinary Female Attendants (28) Night Attendants (3)	6,436 00	6,526 00
	Cooks and Assistant Cooks (6)	852 00	852 00
	Laundresses (4)	564 00	564 00
	Housemaids (6)	720 00	720 00
	Dairymaid	120 00	120 00
	Tailoress and Seamstress (2)	312 00	312 00
	Typewriter and Portress (2)	300 00	300 00
		39,918 00	40,252 00
	Expenses.		
	Medicine and medical comforts	1,200 00	1,200 00
	Fuel	15,000 00	19,000 00
	Butchers' meat, fish and fowl	15,000 00	16,500 00
	Flour	6,500 00	6,500 00
	Butter	7,500 00	7,500 00
	Gas and oil	3,000 00	3,000 00
	Groceries	12,000 00	12,000 00
	Fruit and vegetables	1,000 00	1,000 00
	Bedding, clothing and shoes	13,000 00	13,000 00
	Furniture and furnishings	2,500 00	3,000 00
	Laundry, soap and cleaning	2,000 00	2,500 00
	Farm and garden	2,000 00	2,000 00
	Feed and fodder	1,200 00	1,200 00
	Miscellaneous	1,500 00	1,500 00
	Repairs and alterations	3,500 00	4,000 00
	Printing, postage and stationery	1,200 00	1,200 00
		128,018 00	135,352 00

V. PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses.	
29.	**Asylum for the Insane, Kingston** (Details) (613 patients.)	1902.	**1903.**
	Salaries.		
	Medical Superintendent	2,000 00	2,000 00
	Assistant Physician	1,100 00	1,200 00
	Second Assistant Physician	900 00	950 00
	Bursar (with allowance for rent)	1,200 00	1,200 00
	Clerk (including $100 for rent)	800 00	800 00
	Steward	600 00	600 00
	Storekeeper	750 00	800 00
	Engineer	740 00	740 00
	Assistant Engineer	350 00	350 00
	Carpenter	550 00	550 00
	Baker	450 00	450 00
	Tailor	500 00	500 00
	Chief Attendant	400 00	400 00
	Supervisors (7) / Attendants (15) / Night Watches (2)	7,480 00	7,192 00
	Farmer	500 00	500 00
	Gardener	450 00	450 00
	Butcher	300 00	300 00
	Stokers (4)	1,100 00	1,200 00
	Laundryman	290 00	290 00
	Stableman and Messenger	216 00	216 00
	Night Sewage man	.....	240 00
	Matron	500 00	500 00
	Assistant Matron	300 00	300 00
	Trained Nurse for Infirmary	240 00	240 00
	Musical Instructress	192 00	192 00
	Seamstress	120 00	120 00
	Supervisors (6) / Attendants (13)	3,000 00	3,000 00
	Portress	120 00	120 00
	Cooks (2)	492 00	432 00
	Laundresses (3)	276 00	408 00
	Servants, Dairymaid, etc (3)	480 00	360 00
		26,396 00	26,600 00
	Expenses.		
	Medicines	800 00	800 00
	Butchers' meat, fish and fowl	10,000 00	11,000 00
	Butter	3,700 00	4,000 00
	Flour, bread, etc	3,200 00	3,700 00
	Fuel	9,500 00	11,500 00
	Gas and oil	300 00	500 00
	Groceries	6,500 00	6,500 00
	Fruit and vegetables	1,500 00	2,000 00
	Bedding, clothing and shoes	4,700 00	4,700 00
	Furniture and furnishings	1,800 00	1,900 00
	Laundry, soap and cleaning	1,300 00	1,300 00
	Printing, postage and stationery	850 00	850 00
	Farm and garden	1,500 00	1,500 00
	Feed and fodder	1,500 00	1,500 00
	Repairs	2,000 00	2,000 00
	Miscellaneous	1,000 00	1,200 00
		76,546 00	81,550 00

V. PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
30	**Asylum for the Insane, Hamilton.** (Details) (1,040 patients).		
	Salaries.		
	Medical Superintendent	2,000 00	2,000 00
	Assistant "	1,100 00	1,200 00
	Second Assistant Physician (in new building)	1,000 00	1,000 00
	Third "	800 00	900 00
	Bursar	1,400 00	1,400 00
	Bursar's Clerk	800 00	800 00
	Storekeeper (including allowance)	1,050 00	1,050 00
	Assistant Storekeeper	600 00	600 00
	Engineer	700 00	550 00
	Assistant Engineer	350 00	500 00
	Second do at pump-house	360 00	360 00
	Stokers (5)	1,536 00	1,248 00
	Carpenters (2)	1,050 00	1,050 00
	Baker	450 00	450 00
	Gardener	500 00	500 00
	Assistant Gardener	360 00	360 00
	Porter and Gatekeeper	300 00	325 00
	Chief Attendant (2)	450 00	790 00
	Night Watch, Chief	365 00	365 00
	" " (4)	960 00	960 00
	Supervisors (9)	2,600 00	2,700 00
	Male Attendants (25)	6,050 00	6,036 00
	Tailor	550 00	550 00
	Farmer	600 00	600 00
	Farm Steward	500 00	.....
	Butcher (without board)	360 00	360 00
	Plowmen	276 00	276 00
	Messenger and Stablemen (2)	480 00	480 00
	Farm hand	216 00	216 00
	Laundryman	390 00	390 00
	Shoemaker	300 00	300 00
	Cowman	216 00	216 00
	Matron	500 00	500 00
	Assistant Matron	300 00	300 00
	Second Assistant Matron	240 00	240 00
	Chief Attendant	250 00	240 00
	Trained Nurse	240 00	240 00
	Supervisors (10)	1,770 00	1,740 00
	Ordinary Female Attendants (27)	4,074 00	4,050 00
	Night Watches (7)	850 00	840 00
	Cooks 8)	1,152 00	1,164 00
	Laundresses (4)	552 00	552 00
	Housemaids (4)	432 00	432 00
	Seamstresses (2)	288 00	288 00
	Stenographer	.....	400 00
		39,317 00	39,518 00
	Expenses.		
	Medicines and medical comforts	900 00	1,000 00
	Fuel	19,000 00	20,000 00
	Butchers' meat, fish and fowl	14,500 00	14,500 00
	Flour, bread, etc.	6,800 00	6,800 00
	Butter	8,000 00	8,000 00
	Lighting	3,000 00	4,000 00
	Groceries	10,000 00	10,000 00
	Fruit and vegetables	1,000 00	1,000 00

V. PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses.	
30	**Asylum for the Insane, Hamilton**—*Con.*	1902.	**1903.**
	Expenses.—Concluded.		
	Bedding, clothing and shoes	7,000 00	7,000 00
	Laundry, soap and cleaning	1,700 00	1,700 00
	Furniture and furnishings	2,100 00	2,500 00
	Farm and garden	1,700 00	2,000 00
	Feed and fodder	800 00	1,000 00
	Repairs and alterations	2,800 00	2,800 00
	Miscellaneous	1,200 00	1,500 00
	Water supply	4,000 00	4,000 00
	Printing, postage and stationery	1,200 00	1,200 00
31	**Asylum for Insane, Mimico**	125,017 00	128,518 00
	(640 patients.)		
	Salaries.		
	Medical Superintendent	1,800 00	1,900 00
	Assistant Physician	1,100 00	1,200 00
	2nd do	850 00	850 00
	Bursar (with allowance for rent)	1,200 00	1,300 00
	Bursar's Clerk	600 00	650 00
	Storekeeper	700 00	750 00
	Steward	700 00	700 00
	Farmer and Assistant	752 00	752 00
	Engineer at main building	550 00	600 00
	Engineer at pump house	500 00	500 00
	Assistant Engineer and Electrician	300 00	360 00
	Attendant at sewage works	240 00	240 00
	Carpenter	450 00	450 00
	Jobber and Carpenter	180 00	180 00
	Bricklayer and Mason	500 00	500 00
	Baker	450 00	450 00
	Shoemaker	350 00	350 00
	Firemen (3)	750 00	876 00
	Male Supervisors (6)	1,728 00	1,764 00
	Male Attendants (17)	4,128 00	4,164 00
	Gardener	450 00	450 00
	Night Watches (2)	480 00	492 00
	Messenger	288 00	300 00
	Laundryman	252 00	264 00
	Butcher and Dairyman	252 00	252 00
	Porter	120 00	150 00
	Plowman	240 00	252 00
	Stableman	240 00	240 00
	Matron	500 00	500 00
	Assistant Matron	250 00	250 00
	Supervisors (5)	870 00	870 00
	Attendants (18)	2,700 00	2,700 00
	Laundresses (3)	396 00	396 00
	Night Watches (2)	300 00	300 00
	Cooks (4)	564 00	540 00
	Tailoress	360 00	360 00
	Seamstress	150 00	150 00
	Housemaids (3)	468 00	468 00
		26,708 00	27,470 00

V. PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	**1903.**
31	**Asylum for Insane, Mimico.**—*Continued.*		
	Expenses.		
	Medicine and medical comforts	800 00	900 00
	Fuel (part revote)	9 000 00	15,000 00
	Butchers' meat, fish and fowl	9,000 00	8,000 00
	Flour, meal, etc	4,200 00	4,000 00
	Butter	4,000 00	4,500 00
	Lighting	300 00	300 00
	Groceries	7,000 00	7,000 00
	Fruit and vegetables	500 00	600 00
	Bedding, clothing and shoes	5,500 00	5,000 00
	Furniture and furnishings	1,500 00	1,800 00
	Farm and garden	1,000 00	1,000 00
	Feed and fodder	450 00	500 00
	Printing, postage and stationery	800 00	1,000 00
	Laundry soap and cleaning	1 500 00	1,500 00
	Miscellaneous	1,300 00	1,300 00
	Repairs and alterations	2.000 00	2,000 00
		75,558 00	81,870 00
32	**Asylum for Insane, Brockville**		
	(665 patients.)		
	Salaries.		
	Medical Superintendent	1,800 00	1,900 00
	Assistant Superintendent	1,100 00	1,200 00
	Assistant Physician	800 00	800 00
	Bursar (with allowance for rent)	1,300 00	1,300 00
	Storekeeper	750 00	750 00
	Engineer	500 00	500 00
	Assistant Engineer	300 00	350 00
	Stokers (4)	975 00	984 00
	Carpenter	500 00	500 00
	Porter, etc	400 00	475 00
	Baker	450 00	450 00
	Tailor	450 00	450 00
	Night watch (2)	480 00	480 00
	Chief Attendant	400 00	400 00
	Supervisors (7)	1,728 00	2,100 00
	Ordinary Male Attendants (16)	3,876 00	3,864 00
	Laundry man (formerly attendant)	240 00	264 00
	Farmer	500 00	500 00
	Gardener	450 00	450 00
	Matron	500 00	500 00
	Assistant Matron	300 00	300 00
	Chief Attendant	240 00	240 00
	Supervisors (6)	1,044 00	1,044 00
	Ordinary Attendants (14)	2,100 00	2,100 00
	Night " (2)	300 00	300 00
	Cooks (3)	432 00	444 00
	Laundresses (3)	444 00	444 00
	Housemaids (2)	240 00	240 00
	Seamstress	144 00	144 00
	Dairymaid	120 00	120 00
	Stenographer	.....	200 00
		22,863 00	23,793 00

V. PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
32	**Asylum for the Insane, Brockville**—*Con.*		
	Expenses.		
	Medicine and medical comforts	700 00	700 00
	Fuel	10,000 00	12,500 00
	Butchers' meat, fish and fowl	9,500 00	10,000 00
	Flour, meal, etc	4,200 00	4,300 00
	Butter	4,000 00	4,500 00
	Lighting and oil	2,500 00	2,900 00
	Water supply	2 000 00	2,000 00
	Groceries	7,500 00	8,000 00
	Fruit and vegetables	1,200 00	1,500 00
	Bedding, clothing and shoes	4,000 00	4,500 00
	Furniture and furnishings	1,700 00	1,800 00
	Laundry, soap and cleaning	1,200 00	1,200 00
	Farm and garden	900 00	900 00
	Feed and fodder	400 00	1,000 00
	Miscellaneous	1,500 00	1,500 00
	Repairs and alterations	2,000 00	2,500 00
	Printing, postage and stationery	550 00	600 00
33	**Asylum for Female Patients, Cobourg**	76,713 00	84,293 00
	(150 patients.)		
	Medical Superintendent	1,500 00	1,500 00
	Assistant do	600 00	600 00
	Bursar and Storekeeper	1,200 00	1,200 00
	Engineer	600 00	600 00
	Stokers (2)	900 00	900 00
	Carpenter	600 00	600 00
	Gardener	600 00	510 00
	Baker	600 00	550 00
	Matron	500 00	500 00
	Chief Female Attendant	250 00	180 00
	Supervisor (3)	180 00	504 00
	Female Attendants (7)	1,260 00	1,050 00
	Night Watch (2)	150 00	500 00
	Cooks (3)	312 00	504 00
	Laundresses (2)	336 00	312 00
	Seamtress	150 00	150 00
	Housemaids (2)	240 00	240 00
	Porter	180 00	180 00
		10,158 00	10,580 00
	Expenses.		
	Medicine and medical comforts	600 00	200 00
	Fuel	3,000 00	3,000 00
	Meat, fish, fowl	3,000 00	2,500 00
	Flour, meal, bread, etc	1,200 00	1,200 00
	Butter	1,100 00	1,100 00
	Lighting	750 00	750 00
	Groceries	2,000 00	2,000 00
	Fruit and vegetables	800 00	800 00
	Bedding, clothing, shoes	1,200 00	750 00
	Furniture and furnishings	1,000 00	500 00
	Farm and garden	400 00	250 00
	Feed and fodder	200 00	200 00

V. PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses.	
33.	**Asylum for Female Patients, Cobourg.**—*Con*	1902.	**1903.**
	Expenses.—Concluded.		
	Printing, postage, stationery	750 00	300 00
	Laundry	700 00	500 00
	Water	500 00	500 00
	Miscellaneous	2,500 00	2,000 00
	Repairs and alterations	1,000 00	5 00 00
		30,858 00	27,630 00
34.	**Asylum for Feeble Minded, Orillia**		
	(679 patients.)		
	Salaries.		
	Medical Superintendent	1,800 00	1,900 00
	Assistant Physician	600 00	900 00
	Bursar	1,300 00	1,300 00
	Storekeeper	950 00	950 00
	Engineers (2)	1,100 00	1,100 00
	Gardener	400 00	400 00
	Baker	400 00	400 00
	Tailor	360 00	375 00
	Chief Attendants (2)	360 00	400 00
	Supervisors (2)	.....	600 00
	Night Watches (2)	605 00	504 00
	Ordinary Male Attendants (13)	3,303 00	3,303 00
	Messenger, Porter and Stable-keeper (2)	480 00	480 00
	Laundryman	.....	264 00
	Carpenter	550 00	550 00
	Farmer	450 00	450 00
	Stokers (3)	1,340 00	900 00
	Matron	480 00	500 00
	Assistant Matron	300 00	300 00
	Teachers and Industrial Instructors (2)	1,500 00	1,000 00
	Ordinary Female Attendants (12)	1,850 00	1,728 00
	Night Attendants (2)	300 00	300 00
	Cooks (3)	288 00	408 00
	Laundresses (3)	444 00	420 00
	Housemaids (8)	960 00	960 00
	Seamstress (3)	528 00	520 00
	Dairymaid	120 00	120 00
		20,768 00	21,032 00
	Expenses.		
	Medicines and medical comforts	450 00	500 00
	Fuel	5,500 00	8,500 00
	Butchers' meat, fish and fowl	7,000 00	7,800 00
	Flour, bread, etc	4,000 00	4 800 00
	Butter	4,500 00	5,100 00
	Light, water and power	750 00	1,440 00
	Groceries	4,250 00	4 500 00
	Fruit and vegetables	1,000 00	1 650 00
	Bedding, clothing and shoes	5,500 00	6,600 00

V. PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses.	
34	**Asylum for Feeble Minded, Orillia.**—*Continued*	1902.	**1903.**
	Expenses.—Concluded.		
	Laundry, soap and cleaning	1,500 00	1,600 00
	Furniture and furnishings	1,500 00	1,500 00
	Farm and garden	500 00	500 00
	Feed and fodder	1,300 00	1,800 00
	Repairs	2,000 00	2,000 00
	Miscellaneous	1,500 00	1,500 00
	Printing, postage and stationery	700 00	800 00
		62,718 00	71,622 00
35	**Central Prison, Toronto**		
	(380 Prisoners.)		
	Salaries.		
	Warden (with allowance)	2,000 00	2,000 00
	Deputy Warden	1,400 00	1,200 00
	Bursar	1,300 00	1,300 00
	Physician	900 00	900 00
	Clerk and Prison Librarian	900 00	950 00
	Steward and Storekeeper	800 00	800 00
	Accountant (one-half charged to Industrial Department)	450 00	500 00
	Sergeant Guard	700 00	900 00
	Guards (26)	13,500 00	13,500 00
	Carpenter	600 00	600 00
	Gardener	750 00	750 00
	Engineer	800 00	800 00
	Baker	650 00	650 00
		24,750 00	24,850 00
	Expenses.		
	Hospital expenses and medicines	700 00	500 00
	Butchers' meat and fish	8,000 00	8,100 00
	Flour, bread and meal	4,000 00	4,000 00
	Groceries	4,500 00	4,500 00
	Bedding, clothing and shoes	6,000 00	6,500 00
	Fuel	3,000 00	3,000 00
	Gas and oil	1,000 00	1,000 00
	Water supply	600 00	600 00
	Laundry, soap and cleaning	2,000 00	2,000 00
	Stationery, advertising, printing and postage	500 00	500 00
	Library, schools and expenses of religious services	500 00	750 00
	Furniture and furnishings	700 00	700 00
	Stable, forage, vegetable farm, etc	1,500 00	1,500 00
	Grounds	700 00	700 00
	Repairs and insurance	2,000 00	2,000 00
	Unenumerated	2,000 00	2,000 00
		62,450 00	63,200 00

V. PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote	SERVICE.	Salaries and Expenses.	
36	**Ontario Reformatory for Boys, Penetanguishene.**	1902.	**1903.**
	(112 Inmates.)		
	Salaries..		
	Superintendent	1,800 00	1,800 00
	Assistant Superintendent	1,000 00	1,000 00
	Bursar, Steward and Storekeeper	950 00	950 00
	Surgeon	700 00	700 00
	Chaplains	1,000 00	1,000 00
	Chief guard (for night duty)	500 00	500 00
	School Teachers (with allowance for 2)	1,200 00	1,200 00
	Carpenter Instructor	600 00	600 00
	Engineer	600 00	600 00
	Baker and Cook	450 00	450 00
	Instructor in Tailor Shops	600 00	600 00
	Gardener	400 00	400 00
	Ordinary Guards (6)	2,400 00	2,400 00
	Night Guard	400 00	400 00
	Farm attendant	500 00	500 00
		13,100 00	13,100 00
	Expenses.		
	Medicine and medical comforts	100 00	100 00
	Butcher's meat, fish, etc	1,100 00	1,100 00
	Flour, bread, etc	1,500 00	1,500 00
	Groceries and vegetables	600 00	600 00
	Bedding, clothing and shoes	2,200 00	2,900 00
	Fuel, oil, etc	2,500 00	3,000 00
	Light and water	1,600 00	1,600 00
	Laundry, soap and cleaning	200 00	250 00
	Furniture and furnishings	400 00	400 00
	Farm, garden, feed and fodder	700 00	800 00
	Repairs and alterations	500 00	650 00
	Printing, postage and stationery	200 00	250 00
	Library and school	200 00	250 00
	Workshop and tools	150 00	150 00
	Miscellaneous	1,500 00	1,600 00
		26,550 00	28,250 00
37	**Institution for the Deaf and Dumb, Belleville**		
	(249 Pupils.)		
	Salaries.		
	Superintendent	1,800 00	1,800 00
	Physician	600 00	600 00
	Bursar	1,000 00	1,000 00
	Matron and Housekeeper	500 00	500 00
	Teachers (15)	10,630 00	10,300 00
	Instructor Manual Training	.....	650 00
	Teacher Domestic Science	.....	400 00
	Storekeeper and Clerk and Assistant Supervisor	700 00	600 00
	Engineer	600 00	600 00
	Stoker	300 00	300 00
	Farmer and Gardener	400 00	425 00

V. PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
37.	**Institution for the Deaf and Dumb, Belleville** —*Continued.*		
	Salaries.—Continued.		
	Teamster	240 00	240 00
	Baker	425 00	425 00
	Night Watchman	300 00	300 00
	Foreman carpenter and Assistant (2)	750 00	750 00
	Foreman shoemaker	550 00	480 00
	Printing Instructor	550 00	550 00
	Messenger	192 00	192 00
	Cook	168 00	192 00
	Small Boys' and Girls' Nurses (2)	288 00	312 00
	Maid, Laundress and Cook's Assistants (15)	1,476 00	2,100 00
	Supervisor of Boys	475 00	475 00
	Seamstress and Supervisor for Girls	300 00	300 00
	Stenographer	400 00	400 00
	Trained Nurses	240 00	300 00
	Temporary assistance	150 00	150 00
	Vault Fittings	100 00	.....
		23,134 00	24,341 00
	Expenses.		
	Medicine and medical comforts	200 00	200 00
	Butchers' meat, fish and fowl	3,250 00	3,250 00
	Flour, bread, etc.	1,500 00	1,500 00
	Butter	2,400 00	2,400 00
	Groceries	1,800 00	1,800 00
	Fruit and vegetables	600 00	600 00
	Bedding, clothing and shoes	700 00	700 00
	Fuel	4,600 00	5,500 00
	Coal contracted for, but not delivered	.....	2,000 00
	Lighting	1,000 00	1,000 00
	Laundry, soap and cleaning	550 00	550 00
	Furniture and furnishings	650 00	650 00
	Farm, feed and fodder	650 00	650 00
	Repairs and alterations	900 00	900 00
	Advertising, printing, stationery and postage	600 00	600 00
	Books, apparatus and appliances	650 00	650 00
	Unenumerated	1,000 00	1,000 00
	Sewage works, chemicals	300 00	300 00
	Water supply, under contract	900 00	900 00
		45,384 00	49,491 00
38	**Blind Institute Brantford.**		
	(114 Pupils.)		
	Salaries.		
	Principal	1,800 00	1,800 00
	Physician	500 00	500 00
	Bursar and Storekeeper	1,100 00	1,100 00
	Matron	400 00	400 00
	Teachers (12)	6,335 00	5,850 00
	Trade instructor	1,100 00	1 100 00
	Visitors' Attendant	125 00	150 00
	Carpenter	425 00	425 00
	Engineer	600 00	600 00
	Assistant Engineer	450 00	475 00
	Fireman in winter and farm hand in summer	360 00	360 00

V. PUBLIC INSTITUTIONS MAINTENANCE—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
38	**Blind Institute, Brantford**—*Continued.*		
	Salaries.—Continued.		
	Farmer and Gardener	484 00	500 00
	Teamster	336 00	336 00
	Porter and Messenger	216 00	216 00
	Cook and Baker (2)	580 00	605 00
	Cook's Assistant	120 00	120 00
	Maids (10) and temporary relief	1,110 00	1,058 00
	Laundress	164 00	168 00
	Laundress' Assistants (2) and extra help	228 00	280 00
	Nurses (2)	508 00	500 00
	Night Watchman	375 00	375 00
	Temporary assistance, including extra farm hands in summer	350 00	350 00
		17,666 00	17,268 00
	Expenses.		
	Medicine and medical comforts	150 00	150 00
	Butchers' meat, fish and fowl	1,900 00	1,800 00
	Flour, bread, etc	600 00	600 00
	Butter	1,100 00	1,100 00
	General groceries	1,400 00	1,400 00
	Fruits and vegetables	350 00	350 00
	Bedding, clothing and shoes	600 00	600 00
	Fuel	3,000 00	3,500 00
	Electric light and gas	900 00	900 00
	Laundry, soap and cleaning	325 00	325 00
	Furniture and furnishings	500 00	500 00
	Farm expenses and feed and fodder	700 00	700 00
	Repairs and alterations	600 00	600 00
	Advertising, printing, stationery and postage	550 00	600 00
	Books, apparatus and appliances	700 00	800 00
	Unenumerated	1,000 00	1,000 00
	Pupils' sittings at the churches	200 00	200 00
	Rent for water hydrant	160 00	160 00
	Extra water supply	300 00	350 00
	Typewriters (2)	150 00	.....
		32,851 00	32,903 00
39	**Andrew Mercer Reformatory for Females.** (141 inmates.)		
	Salaries.		
	Superintendent	1,000 00	1,000 00
	Deputy Superintendent	600 00	600 00
	Secretary	350 00	350 00
	Physician	800 00	800 00
	Bursar and storekeeper	1,100 00	1,100 00
	Teachers and Housekeeper for Refuge	2,250 00	2,730 00
	Attendants and servants (9)	1,800 00	2,044 00
	Carpenter and mason	600 00	600 00
	Engineer	600 00	600 00
	Assistant Engineer	500 00	550 00
	Night Watch	550 00	550 00
	Messenger	425 00	425 00
	Gardener and assistants	650 00	650 00
	Stable and caretaker	.....	365 00
		11,225 00	12,384 00

V. PUBLIC INSTITUTIONS MAINTENANCE.—*Concluded.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	**1903.**
39.	**Andrew Mercer Reformatory for Females and Refuge for Girls, Toronto** —*Continued.*		
	Expenses.		
	Hospital, expenses and medicine	150 00	200 00
	Butchers' meat and fish	1,600 00	1,600 00
	Flour, bread and meal	1,050 00	1,150 00
	Groceries, vegetables and butter	2,000 00	2,500 00
	Bedding, clothing and shoes	1,500 00	2 150 00
	Fuel	1,600 00	2.000 00
	Lighting	700 00	850 00
	Laundry, soap, cleaning and water	900 00	1,350 00
	Stationery, advertising, postage, etc	300 00	450 00
	Library, schools and lectures	500 00	575 00
	Furniture and furnishings	700 00	750 00
	Grounds and garden	600 00	600 00
	Repairs	800 00	800 00
	Unenumerated	1,000 00	1,000 00
	For manufacturing operations	1,000 00	1,100 00
	Feed and forage	450 00	450 00
		26,075 00	29,909 00

VI. COLONIZATION AND IMMIGRATION.

Amount to be voted, $14,325.00.

		1902	**1903**
40	Colonization purposes, pamphlets and advertising (*transferred from Miscellaneous*)	9,000 00	9,500 00
	Agent in Liverpool	2,365 00	2,365 00
	Clerk	600 00	600 00
	Travelling expenses	300 00	300 00
	Printing and contingencies	800 00	800 00
	Office rent and expenses, including fuel, stationery, etc.	760 00	760 00
		13 825 00	14,325 00

VII. AGRICULTURE

Amount to be voted, $282,920.00.

No. of Vote.	SERVICE.	Salaries and Expenses. 1902	**1903**
41	Special Grants for Agricultural purposes	172,300 00	166,950 00
42	Ontario Agricultural College	53,999 00	68,309 00
43	Experimental Farm and Feeding	11,220 00	12,794 00
44	Experimental Plots	6,653 00	7,447 00
45	Experimental Dairy	7,520 00	8,593 00
46	Central Dairy School	8,055 00	9,719 00
47	Poultry Department	1,900 00	2,025 00
48	Horticultural Department	5,304 00	6,183 00
49	Mechanical Department	875 00	900 00
		267,826 00	282,920 00

VII. AGRICULTURE—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
41	**Special Grants for Agricultural Purposes**		
	District Societies, 90 at $700	63,000 00	63,000 00
	do 1 at 550	550 00	550 00
	do 6 at 350	2,100 00	2,100 00
	do Outlying Districts	2,000 00	2,000 00
	Additional grant to 90 District Societies	9,000 00	9,000 00
	Fruit Growers' Association	1,800 00	1,800 00
	Entomological Society	1,000 00	1,000 00
	Cheese and Butter Associations	8,000 00	8,000 00
	Special Dairy Instruction	4,000 00	6,000 00
	Horse Breeders' Association	2,000 00	2,000 00
	Registrar, Live Stock	1,500 00	1,500 00
	Dominion Sheep Breeders' Association	2,000 00	2,500 00
	Swine Breeders' Association	2,000 00	2,500 00
	Dominion Cattle Breeders' Association	2,000 00	2,500 00
	Ontario Experimental Union	1,400 00	1,500 00
	Poultry Associations	2,000 00	2,000 00
	Beekeepers' Association and inspection	1,100 00	1,100 00
	Travelling expenses and allowances for Lectures at Farmers Institutes, including Superintendent	8,500 00	8,500 00
	Farmers' Institutes	3,000 00	3,000 00
	Institutes for women		2,000 00
	For sundry services in connection with Agriculture and Arts —such as investigation of disease in animals and crops, and of ravages of insects; printing and distributing reports and bulletins, and for agriculture instruction, dairy products, travelling expenses and contingencies, not otherwise provided for	16,000 00	16,000 00
	Expenses *re* administration of San José Scale	4,000 00	3,000 00
	Experimental Fruit Stations	2,800 00	3,100 00
	Eastern Dairy School	4,850 00	4,850 00
	Pioneer Dairy Farm	1,000 00	1,600 00
	Western Dairy School	2,850 00	2,850 00
	Bureau of Industries	5,500 00	5,500 00
	Cold Storage, including plans and instruction	2,500 00	2,500 00
	Experimental Cold Storage Station	1,500 00	
	Sugar Beet Association	200 00	500 00
	Provincial Live Stock sales (advertising)	500 00	500 00
	Eastern Fair, Ottawa	3,000 00	
	Fruit Institutes	300 00	300 00
	Farmers' Institutes—typewriter etc	150 00	
	Short courses in stock judging and poultry raising	200 00	200 00
	Agricultural College Library—books and fittings	1,500 00	
	To provide chicken coops for Provincial Winter Fair	500 00	500 00
	Towards enlargement of Winter Fair Building, Guelph	5,000 00	
	Experiments Sugar Beet	1,000 00	
	Towards payment of Judges at Agricultural Fairs	2,000 00	3,000 00
42	**Ontario Agricultural College**	172,300 00	166,950 00
	President	2,000 00	2,000 00
	Professor of Dairying	1,500 00	1,600 00
	do Physics and English	1,500 00	1,600 00
	do Biology	1,500 00	1,600 00
	do Agriculture	1,500 00	1,600 00
	do Horticulture	1,400 00	1,500 00

VII. AGRICULTURE—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
42	**Ontario Agricultural College** —*Continued.*		
	Professor of Bacteriology	1,400 00	1,500 00
	do Chemistry	1,400 00	1,500 00
	do Veterinary Science (part time)	1 000 00	1,000 00
	Lecturer in Biology	1.000 00	1,000 00
	do Chemistry	1.000 00	1,100 00
	do Animal Husbandry	750 00	1,100 00
	Demonstrator in Bacteriology	600 00	1,000 00
	do Chemistry	9 0 00	1,000 00
	do Field Husbandry (½ year)		5 0 00
	Manager Poultry Dept.	1.000 00	1,100 00
	3 Fellows (two last year)	760 00	1,350 00
	Dean of Residence	600 00	700 00
	Teacher of French and German	500 00	600 00
	Assistant in Library		350 00
	Teacher of Drill and Gymnastics	30 00	300 00
	President's Secretary	800 00	700 00
	Stenographer	250 00	300 00
	Bursar	1 000 00	1,100 00
	Clerk		500 00
	Matron	500 00	500 00
	Phys cian	400 00	500 00
	Engineer	800 00	800 00
	3 Stokers (2 last year)	768 00	1,176 00
	Nightwatchman	324 00	396 00
	Messenger	312 00	336 00
	Janitor	360 00	396 00
	Temporary assistance	300 00	700 00
	School assessment	125 00	125 00
	Student labour account		5,000 00
	Travelling expenses etc. outside lectures		500 00
	Expenses and Maintenance.	26,549 00	37,029 00
	Meat, fish and fowl	5,000 00	6,000 00
	Bread, biscuits, etc	1,000 00	1,200 00
	Groceries, butter, and fruit	5,400 00	6,000 00
	Laundry, soap, and cleaning	300 00	300 00
	Women servants for Boarding House—cooks, laundresses.	2,000 00	2,200 00
	Advertising, printing, postage, and stationery	1,000 00	1,500 00
	Maintenance of four laboratories	1 400 00	1,600 00
	Expenses of short courses in stock judg'g and poultry rais'g	200 00	300 00
	Agricultural College Library—books and fittings	1,000 00	
	Library and Reading Room—books, papers, and fittings	1,000 00	2,000 00
	Scholarships	100 00	100 00
	Telephone Service	150 00	180 00
	Unenumerated	700 00	700 00
	Furniture and furnishings, transf'red from rep's and maint'ce	1,000 00	1,000 00
	Fuel do	4,000 00	5,000 00
	Light do	1,200 00	1,200 00
	Sewage disposal labor, chemicals, &c. do	500 00	500 00
	Repairs and alterations do	1,000 00	1,300 00
	Generator and repairs to motor and fire alarm, Dairy Dept.		200 00
		53,999 00	68,309 00
43	**Experimental Farm and Feeding**		
	Fencing, drainage, etc	500 00	100 00
	Wages of men and foreman	3,300 00	3,800 00

VII. AGRICULTURE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
43	**Experimental Farm and Feeding.**—*Con.*		
	Live stock—cattle for feeding, etc	3,800 00	5,000 00
	Maintenance of stock	1,500 00	1,600 00
	Seed	200 00	250 00
	Binding twine	30 00	30 00
	Repairs and alterations blacksmithing, etc	450 00	500 00
	Furnishings	150 00	150 00
	Tools and implements	250 00	250 00
	Advertising, printing, postage, etc.	50 00	50 00
	Fuel and light	30 00	30 00
	Team of horses	400 00	400 00
	Experimental feeder	360 00	384 00
	Contingencies	200 00	250 00
		11,220 00	12,794 00
44	**Experimental Plots**		
	Permanent improvements	475 00	630 00
	Experimentalist ($200 formerly paid from Experimental Union)	1,500 00	1,800 00
	Assistant Experimentalist	450 00	500 00
	Stenographer	300 00	300 00
	Foreman	500 00	600 00
	Teamster	360 00	382 00
	Teamster (8 months)	240 00	272 00
	1 laborer (4 months)	128 00	128 00
	Additional Labor	1,200 00	1,300 00
	Seeds	450 00	450 00
	Manure and special fertilizers	150 00	150 00
	Furnishings, repairs (blacksmithing, etc.)	325 00	325 00
	Printing, postage and stationery	125 00	125 00
	Implements	110 00	110 00
	Contingencies	200 00	200 00
	Purchase of horse	140 00	175 00
		6,653 00	7,447 00
45	**Experimental Dairy.**		
	Foreman and experimenter in butter making	475 00	432 00
	Experimental cheese-maker (9 months)	500 00	432 00
	Man to assist in experimental work (9 months)	270 00	270 00
	Labor—milking, feeding stock, etc	500 00	264 00
	Cattleman	.....	420 00
	Milk for experimental cheese-making	3,500 00	4,500 00
	Purchase of cows	500 00	500 00
	Feed and fodder	650 00	650 00
	Furniture, furnishings, repairs, etc	500 00	500 00
	Fuel and light	250 00	250 00
	Laboratory expenses—gas, chemicals, etc	100 00	100 00
	Contingencies	275 00	275 00
		7,520 00	8,593 00

VII. AGRICULTURE.—*Concluded*

No. of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
46	**Central Dairy School.**		
	Wages of seven instructors (3 months)	1,525 00	1,580 00
	Domestic Economy Lectures	100 00	.....
	Engineer for four months	90 00	132 00
	General helper for four months	90 00	132 00
	Cleaning, painting, alterations, repairs, etc	200 00	300 00
	Dairy appliances—separators, vats, etc	500 00	500 00
	Refrigerator plant	.....	1,000 00
	Expenses of cheese and butter judges	25 00	25 00
	Travelling expenses inspecting factories	50 00	50 00
	Books, magazines, papers, etc	50 00	50 00
	Advertising, printing, postage and stationery	75 00	100 00
	Fuel and light	250 00	250 00
	Purchase of milk for use in school	5 000 00	5,500 00
	Contingencies	100 00	100 00
		8,055 00	9,719 00
47	**Poultry Department**		
	Temporary assistant	420 00	420 00
	Purchase of stock	60 00	60 00
	Furnishings, repairs, etc	120 00	120 00
	Feed, etc	250 00	250 00
	Fuel, light and contingencies	150 00	175 00
	Experiments in fattening for market	900 00	900 00
	Incubator experiment	.....	100 00
		1,900 00	2,025 00
48	**Horticultural Department.**		
	Permanent improvements	200 00	700 00
	Head gardener and foreman	700 00	750 00
	Florist to take charge of greenhouses, etc	540 00	600 00
	Assistant in greenhouses	400 00	400 00
	Teamster	360 00	378 00
	Fellow for 7 months	230 00	230 00
	Laborers	1,424 00	1,500 00
	Manure	100 00	100 00
	Trees, plants, bulbs and seeds	300 00	300 00
	Implements, tools, furnishings, flower pots, repairs, etc	400 00	400 00
	Fuel and light	550 00	550 00
	Contingencies	100 00	100 00
	Purchase of a horse	.....	175 00
		5,304 00	6,183 00
49	**Mechanical Department.**		
	Salary of foreman	750 00	750 00
	Tools, fuel and light	125 00	150 00
		875 00	900 00

VIII.—HOSPITALS AND CHARITIES.

Amount to be voted $225,647.88.

No of Vote.	SERVICE.	Salaries and Expenses. 1902.	1903.
50	For Institutions, mentioned in Schedule "A" of Statutes..	110,000 00	110,000 00
	For Institutions in Schedule "B".....	62,388 35	63,870 11
	" " "C".....	15,067 34	14,995 57
	For printing, stationery and other contingencies.....	300 00	300 00
	Transferred from Miscellaneous :		
	Industrial Schools	8,282 20	8,282 20
	Children's Aid Societies	2,000 00	2,000 00
	Canadian Humane Society.....	250 00	250 00
	Victoria Order of Nurses in new districts	2,500 00	2,500 00
	Salvation Army prison gate work.....	500 00	750 00
	Infants' Home and Infirmary.....	200 00	200 00
	To assist in re-erection of Mattawa Hospital..	500 00	.....
	Smallpox outbreaks	10,600 00	10,600 00
	Sanitary investigations	2,900 00	2,900 00
	For the analysis of sewage.....	2,000 00	1,000 00
	County of Lanark house of refuge	....	4,000 00
	County of Ontario do	....	4,000 00
	Total.....	217,487 89	225,647 88

IX.—MAINTENANCE AND REPAIRS OF GOVERNMENT BUILDINGS.

Amount to be voted $52,750.00

		1902.	1903.
51	Government House	8,700 00	8,000 00
52	Parliament and Departmental Buildings.....	44,490 00	44,750 00
51	**Government House**	53,190 00	52,750 00
	Gardener and Caretaker.....		
	Fireman and assistant gardener		
	Assistant gardener.....		
	Extra gardener		
	Water		
	Gas	7,500 00	8,000 00
	Fuel.....		
	Repairs.....		
	Furnishings		
	Contingencies		
	To meet balance of unpaid accounts due in 1901	1,200 00	
52	**Parliament and Departmental Buildings**	8,700 00	8,000 00
	Water and Fuel.....	9,000 00	9,000 00
	Electric power and electric lighting.....	4,000 00	5,000 00
	Supplies, tools, etc., for engine room and general repairs....	1,000 00	1,000 00
	Caretakers of grounds, repairs and cleaning of buildings, etc.	7,000 00	7,000 00
	Engineer	1,200 00	1,200 00
	Assistant engineer and steam fitter.....	720 00	720 00

IX. MAINTENANCE AND REPAIRS OF GOVERNMENT BUILDINGS. —*Concluded.*

No. of Vote.	SERVICE.	Salaries and Expenses.	
52	**Parliament and Department Buildings.**—*Con.*	1902.	**1903.**
	Firemen in boiler room (3)	1,620 00	1,680 00
	Passenger elevator attendants (2)	1,100 00	1,200 00
	Porters in charge of entrances and corridors, etc. (4)	2,200 00	2,200 00
	Night watchmen (2)	1,200 00	1,200 00
	Superintendent of grounds and garden	250 00	250 00
	Furnishings of Legislative Chamber, Speaker's apartments	1,000 00	1,000 00
	Care of old Parliament Buildings and grounds	750 00	
	Cleaning departmental offices, 6 departments at $300 each	1,800 00	1,800 00
	Furniture and furnishings for 6 departments, each $400	2,400 00	2,400 00
	Furniture Public Works Department	400 00	
	For grounds and garden shrubs, etc.	500 00	500 00
	Uniforms for messengers, hall porters and elevator attendants	300 00	300 00
	Unpaid accounts for 1901	2,000 00	
	Renewal protection hose (re-vote)	600 00	600 00
	New scales for weighing coal (re-vote)	200 00	200 00
	Fitting up vaults in W., F. and Lands Branch	1,500 00	600 00
	Painting corridors		2,000 00
	Library fittings (part re-vote)		500 00
	Improvement in fire alarm system		500 00
	General Clerk of Works	1,200 00	1,200 00
	Carpenter	750 00	750 00
	Inspector steam-fitting Public Institutions	1,000 00	1,050 00
	Inspector plumbing and sanitary appliances do	800 00	900 00
		44,490 00	44,750 00

X.—PUBLIC BUILDINGS.

Amount to be voted, $463,201.00.

No. of Vote.	SERVICE.	Re-vote estimated.	New vote.
		1903.	
53	Parliament Buildings		2,000 00
54	Public Institutions	39,000 00	119,410 00
55	Educational	73,200 00	210,490 00
56	Districts	2,300 00	16,801 00
	Re-vote included in above	114,500 00	348,701 00
	Expenditure on Capital Account (new)	321,190 00	
	Repairs	27,511 00	
		463,201 00	

PUBLIC BUILDINGS.—*Continued.*

No. of Vote	SERVICE.	To be voted for 1903	
53	**Parliament Buildings.**		
	Additional rooms and vault fittings		2,000 00
54	**Public Institutions.**		
	Asylum for Insane, Toronto—		
	Renewals, furniture, furnishings, etc.—		
	Repairs, drains, &c	500 00	
	Repairs to entrance gates and lodges	500 00	
	Coal shed and electric light	900 00	
	Engineer's supplies, heating lighting, &c	1,700 00	
	Exterior repairs and alterations	1,200 00	
	Interior repairs and bowling alley	775 00	
	Furniture and furnishings	3,000 00	
	Asylum for Insane, Mimico—		
	Renewals, furniture, furnishings, etc.—		
	Repairs, drains, &c	450 00	
	Laundry, machinery (re-vote)	200 00	
	Installation of Gegenstrom bathing apparatus, 2 Cottages	800 00	
	Farm and garden	350 00	
	Exterior repairs and alterations	400 00	
	Interior do	1,000 00	
	Furniture and furnishings	1,500 00	
	Asylum for Insane, London—		
	Extensions and improvements..—		
	Infirmary Building	18 500 00	
	Furniture and furnishings—Infirmary	5.000 00	
	Resevoir and improved water supply	2,500 0	
	Additional story to carpenter shop	1,200 00	
	To complete addition to laundry	1,800 00	
	Renewals, furniture, furnishings, etc.—		
	Repairs, drains, roofs, &c	300 00	
	Laundry fittings, &c	1,800 00	
	Slating roof main building	1,000 00	
	Exterior repairs, general	900 00	
	Interior do and alterations	400 00	
	Engineer's fittings, baths, &c	1,700 00	
	Water supply, hydrants, &c	800 00	
	Hose	400 00	
	Asylum for Insane, Hamilton—		
	Additional dormitories	3 000 00	
	Furniture and furnishings for new dormitories	1,600 00	
	Repairs to Medical Superintendent's house, on account of fire	2,000 00	
	Exterior general repairs	2,0 0 00	
	Improvements in bathing appliances (4 bath rooms)	2,000 00	
	Increased water main (re-vote)	1,300 00	
	Experiments—water supply (re-vote)	2,000 00	
	Renewals, furniture, furnishings, etc.—		
	Repairs, roofs, drains, &c	400 00	
	Repairs to sewer (part re-vote)	2,000 00	
	Repairs to engines	300 00	
	Boilers, renewals	3 000 00	
	Electric arc lamps to grounds	300 00	

PUBLIC BUILDINGS.—*Continued.*

No. of Vote.	SERVICE.	To be voted for 1903.
54	**Public Institutions** —*Continued.*	
	Asylum for Insane, Kingston—	
	New boilers and covering pipes	2,800 00
	Cottage for Convalescents' and Nurses' Home—(part re-vote)	4,500 00
	Heating, Lighting and Plumbing do	1,000 00
	Renewals, furniture, furnishings, etc.—	
	Repairs, roofs, drains, etc.	300 00
	Rebuilding lavatory, North Cottage	500 00
	Painting Main Building	400 00
	Hot air furnace, New Court Building	150 00
	Closets and tanks (lavatories), renewals	300 00
	Laundry machinery	150 00
	Hose for fire protection	100 00
	Repairs cottage for tuberculosis patients	850 00
	Engineer's supplies	200 00
	Furniture and furnishings	1,650 00
	Surgical appliances	150 00
	Asylum for Insane, Brockville—	
	Electric light wiring	2,000 00
	Spray baths	1,200 00
	Renewals, furniture, furnishings, etc.—	
	Repairs, roofs and drains	400 00
	Alterations to drying-room	650 00
	Farm and garden	1,400 00
	Furniture and furnishings	1,200 00
	Asylum for Insane, Cobourg—	
	Residence for Superintendent (part re-vote)	5 000 00
	Root house and outbuilding (re-vote)	500 00
	Renewals, furniture, furnishings, etc.—	
	Fences and drains	300 00
	Railing for steps, painting, furniture and furnishings	300 00
	Asylum for Idiots, Orillia—	
	Completion of Electric light, power and fire protection	5,800 00
	Completion of machinery and silo and extension of stables	1,200 00
	Renewals, furniture, furnishings, etc.—	
	Repairs, roofs, drains, etc	300 00
	Repairs to roof of Main Building, exterior painting and enlargement of cellar	2,400 00
	Engineer's supplies	300 00
	Furniture and furnishings, increased number of patients	1,800 00
	Central Prison, Toronto—	
	Renewals, furniture, furnishings, etc.—	
	Repairs, roof, drains, etc	300 00
	Stand pipe valves and engineer's fittings to extend sprinkler system for fire protection	600 00
	Completion of store house and chapel	1,000 00
	Plumber's fittings and fixtures for bath room	400 00
	Furniture and furnishings	700 00
	Reformatory for Boys, Penetanguishene—	
	Renewals furniture, furnishings, etc.—	
	Drains and drainage	200 00
	Farm fencing	200 00
	New roof and painting exterior woodwork, Supt's residence	400 00

X. PUBLIC BUILDINGS.—*Continued.*

No. of Vote.	SERVICE.	To be voted for 1903.	
54	**Public Institutions** —*Concluded.*		
	Reformatory for Boys, Penetanguishene.—Continued.		
	Repairs to attendants' dwelling, outbuildings and new floor in root house	800 00	
	Team of horses, harness and carts	400 00	
	Furniture and furnishings	300 00	
	Hospital for Epileptics, Oxford—		
	Site for Hospital—(re-vote)	10,000 00	
	Initial vote for buildings—(re-vote)	20,000 00	
	Reformatory for Females, Toronto—		
	Fencing yard and kitchen garden	1,750 00	
	New floors and metal ceilings	900 00	
	Reconstruction of main laundry	2,500 00	
	Renewals, furniture, furnishings, etc.—		
	Painting metal ceiling; walls, and woodwork in Refuge, and fittings windows to admit outside iron guards opening for escape in case of fire	400 00	
	Laundry drying-room and cold storage	585 00	
	Cement floors in basement and walks in exercise yard	565 00	
	Furniture and furnishings	600 00	
	Deaf and Dumb Institute, Belleville—		
	Electric plant, engines and dynamos	2,000 00	
	Enlargement of laundry over boiler room	950 00	
	Renewals, furniture, furnishings, etc.—		
	Educational supplies	300 00	
	Cement walks floor Main Building	550 00	
	Laundry machinery	550 00	
	Furniture and furnishings	550 00	
	Lumber flooring, paints, oils, plastering and painting	850 00	
	Wages for repairs	350 00	
	Extension of drains	250 00	
	Bricking in steam boilers and re-setting (3 boilers)	450 00	
	Institute for Blind, Brantford—		
	Extension of lavatories	1,100 00	
	Renewals, furniture, furnishings, etc.—		
	Painting Main Building, Principal's and Bursar's houses	225 00	
	Driveways, grading, &c	200 00	
	Washing machine	260 00	
	Educational appliances	300 00	
	Lumber for walks	200 00	
	Repairs to fence	50 00	
			158,410 00
55	**Educational**		
	Normal and Model School, Toronto—		
	Addition to Normal School for Manual Training and Domestic Science	20,000 00	
	Improvements in steam heating to save fuel	5,000 00	
	Normal and Model School, Ottawa—		
	Equipment for Domestic Science Class room	1,200 00	
	Normal School, London—		
	Class room for manual training	1,100 00	
	Equipment do	500 00	
	Furnishings, etc.	700 00	

X. PUBLIC BUILDINGS.—*Continued.*

No. of Vote.	SERVICE.	To be voted for 1903.	
55	**Educational**—*Continued.*		
	School of Practical Science, Toronto—		
	New buildings (part re-vote)	175,000 00	
	Plumbing, heating and ventilation	35,000 00	
	Equipment—Mining and Assaying Laboratories	5,000 00	
	do Mineralogy Laboratory	3,000 00	
	do Chemical do	6,000 00	
	Agricultural College and Experimental Farm, Guelph—		
	Water and fire hydrants—Sir W. McDonald Building	800 00	
	Electric Line from College to Buildings	900 00	
	Furnishing residence for 100 girls	4,000 00	
	Grading grounds, making roads and laying walks	2,000 00	
	Architects' fees	8,525 00	
	Cases for General Museum	1,000 00	
	Special apparatus for laboratories	1,800 00	
	Covering and re-laying steam-pipes underground	2,000 00	
	Cement walks and cement floor in College Gymnasium	1,000 00	
	Steam radiators in students' dormitories	700 00	
	Balance contract electric lighting, and heating Physical Laboratory and Museum	1,550 00	
	Completion of electric light plant and wiring for buildings and grounds	4,500 00	
	Skylights and alterations, Experimental Building	1,000 00	
	To complete power house	250 00	
	Steam connections main, engine room and boilers	600 00	
	Extensions of electric, wiring and fixtures, Massey Building	265 00	
	Steam heating, Live Stock Pavilion	300 00	
			283,690 00
56	**Districts.**		
	Algoma—		
	Plumbing, Gaol and Court House, Sault Ste. Marie	900 00	
	Furnace and plumbing, gaoler's house. do	130 00	
	Lock-up, Wawa (part re-vote)	936 00	
	Repairs and furniture to Lock-ups, Manitowaning, Chapleau, Blind River, Webbwood, Massie and Little Current	825 00	
	Repairs Gore Bay	500 00	
	Thunder Bay—		
	Lock-up, Nepigon	1,300 00	
	Repairs, furniture and improvements	1,000 00	
	Improvements in heating system Court House and Gaol, Port Arthur	500 00	
	Muskoka—		
	Lavatories Court House and Gaol, Bracebridge	500 00	
	Enlargement gaol yard	450 00	
	Repairs, furniture and improvements	400 00	
	Parry Sound—		
	Heating Court House and Gaol, Parry Sound	2,500 00	
	Repairs, furniture and improvements	750 00	
	Nipissing—		
	Improvements in Heating Court House and Gaol, Mattawa	1,300 00	
	Repairs, furniture and improvements	700 00	
	Lock-up, Copper Cliff	500 00	

X. PUBLIC BUILDINGS.—*Concluded.* XI. PUBLIC WORKS.

No. of Vote.	SERVICE.	To be voted for 1903.
56	**Districts** —*Concluded.*	
	Rainy River—	
	Plumbing, Gaol and Court House, Rat Portage	600 00
	do gaoler's house, do	200 00
	Heating, do do	200 00
	Lock-up, Emo	1,800 00
	do Beaver Mills	2,100 00
	To complete lock-up, Atikokan	810 00
	Repairs, furniture and improvements	200 00
		19,101 00

XI. PUBLIC WORKS

Amount to be voted, $88,597.00.

No. of Vote.	SERVICE.	Re-vote. 1903.	New vote. 1903.
57	**Public Works**		
	1 To reconstruct bridge at Combermere		5,000 00
	2 To construct steel bridge at outlet, Lake of the Woods		16,000 00
	3 To dredge channel outlet Port Carling and to construct new lock gates and pier	819 00	2,500 00
	4 To renew swing bridge, Scugog River Works		2,500 00
	5 To construct swing bridge, concession 8 and 9, Ryerson	4,300 00	
	6 To repair bridge and piers at the outlet of Lake Woolsey		1,500 00
	7 To construct dam at outlet, Eagle Lake Works		1,200 00
	8 To improve dam at outlet Manitou Lake Works		2,100 00
	9 To reconstruct lock gates at Young's Point		1,000 00
	10 To construct bridges over Jean Baptiste River		3,000 00
	11 To construct Bridge over Wabis Creek	1,859 00	
	12 Rainy River Road Bridges		3,000 00
	13 Stanley Bridge, Thunder Bay		4,000 00
	14 Deepening Indian River	1,889 00	
	15 Dredging Black River		2,200 00
	16 Outlet for Durham Creek, Brooke Township	1,300 00	
	17 Outlet Drain, Elma Township	2,910 00	
	18 Outlet Drain, Eastnor Township	2,480 00	
	19 *Bosanquet Township*—		
	Nesbit Drain	300 00	
	Rogers Drain	240 00	
	20 Silver Creek and Castor River Drainage Works	2,400 00	
	21 Petite Castor River and Amabel Creek Drainage Works	7,700 00	
	22 Fraser Creek Drain, Roxborough Township	300 00	
	23 Becquith Creek Drain, Cumberland and Clarence Tps		1,000 00
	24 Kenyon, Charlottenburg, Cornwall and Roxborough Tps		700 00
	25 Monklands Drainage Scheme, Roxborough Township		1,200 00
	26 Maintenance locks, dams and bridges		9,000 00
	27 To pay surveys, inspections arbitrations and awards		1,000 00
	28 Superintendence locks, dams and bridges		1,200 00
	29 Lockmaster, bridge tenders and caretakers' salaries		4,000 00
	Summary.	26,497 00	62,100 00
	Re-Vote included in above	26,497 00	
	Expenditure on Capital Account (new)	28,100 00	
	Expenditure for repairs	34,000 00	
			88,597 00
	(Total voted for 1902, $93,401.00.)		

XII. COLONIZATION AND MINING ROADS, 1903.

Amount to be voted $145,450.00.

No. of Vote.	A.	To be voted for 1903.	
58	East Division	28,500 00	
	North Division	45,750 00	
	West Division	12,200 00	
	Temiskaming roads, short roads, repairs, inspection, mining		86,450 00
	roads, etc		59,000 00
	Total		145,450 00

No. of Vote	SERVICE.	To be voted for 1903.
58	**East Division.**	
	Alice township road	500 00
	Appleby road between con. 1 and 2	300 00
	Antoine Creek bridge	00 00
	Anstruther Burleigh Chandos roads	500 00
	Ashdad and Springtown road	250 00
	Abinger and Miller town line road	00 00
	Arden, Harlow, and Kennebec road	400 00
	Airy Township roads	250 00
	Badgerow and Gibbins road	500 00
	Blezard and Hanmer road	40 00
	Bastedo and Vazina road to complete	500 00
	Bonfield and North Bay road, lots 2 and 3 and con. 2 and 3	500 00
	Bonfield and Ferris road	00 00
	Burleigh roads	400 00
	Bridge on Monck road Laxton township	250 00
	Brudenell and Killaloe road	300 00
	Bog road Connellsville to Third lake road	300 00
	Carlow, Mayo and Bancroft roads	200 00
	Calvin road, lots 5 and 6 and 2nd con	500 00
	Chisholm Township roads	900 00
	Cameron Township roads	500 00
	Casimir and Martland road	1 200 00
	Dunnett 3rd con. road	200 00
	Deer Creek bridge	200 00
	Douro road	200 00
	Devil's lake road	200 00
	Dalton road from Kehoe's bridge south	200 00
	Desert Lake road	300 00
	Eldon 3rd quarter line road	250 00
	Field road, cons 5 and 6	300 00
	Ferris Township roads	900 00
	Fourth con. road Hagarty	300 00
	Frontenac road, bridge near Ardoch	400 00
	Grattan and Dacre road	300 00
	Gibbons Township road Desaultniers north	300 00
	Garson Township road	200 00
	Grant Township road from Smoky Falls bridge	300 00
	Hagarty Township road	400 00
	Hugel and Badgerow roads	500 00
	Head Township road, lots 16 and 17	200 00
	Jones Falls and Battersea road	300 00
	Kirkpatrick and McPherson road	300 00
	Kirkpatrick Township road, con. 3	200 00
	Loudon and McPherson road	200 00
	Lachapelle and Bonfield road	500 00

XII. COLONIZATION AND MINING ROADS.—*Continued.*

No. of Vote.	SERVICE.	To be voted for 1903.	
58	**East Division**—*Continued.*		
	Lutterworth, Snowdon and Minden road	400 00	
	Loughboro and Wilmer road	250 00	
	Mud Creek bridge	350 00	
	MacArthur bridge Fort Stewart road	250 00	
	Monmouth Township roads	200 00	
	Maxwell bridge for Burnt River in Glamorgan	400 00	
	Methuen road	300 00	
	Martland Township roads	500 00	
	Opeongo road, east of Sherwood	300 00	
	Oso and Bedford road	400 00	
	Perth road to Bedford and Crosley	250 00	
	Papineau Township roads	800 00	
	Paugh Lake road to complete	300 00	
	Pembroke and Mattawa road	500 00	
	Rolf, Buchanan and Wylie roads	400 00	
	Round Lake road to complete	400 00	
	Sudbury and Richard Lake road	300 00	
	Springer road	400 00	
	Sturgeon River road	400 00	
	Sauer road (re-vote)	250 00	
	South Algona, 8th and 14th cons	500 00	
	Sheffield Township road	300 00	
	Thirteen Island Lake road	300 00	
	Tamworth and Parham road	300 00	
	Wilberforce Township roads	500 00	
	Warren and Hugel road	300 00	
	Warren road north	300 00	
	Widdifield roads	500 00	
	Wilno Station road	250 00	
	Wisawasa road	400 00	
	Westport and Perth road and bridge	400 00	
			28,500 00
	North Division		
	Atwood and Curran road	1,000 00	
	Bruce Mines and Desert Lake road	500 00	
	Blind River bridge	600 00	
	Bridge on 1st, and 2nd con. Wainwright	600 00	
	Cutler and Spanish station road	300 00	
	Chapleau road	300 00	
	Conmee Township road to complete to C. N. Ry	1,000 00	
	Carpenter and Dobie town line road	2,000 00	
	Carpenter road between lots 6 and 7	600 00	
	Crozier, Devlin and Lash road	2,000 00	
	Crozier and Lash road	500 00	
	Dobie road 4th and 5th con	500 00	
	Devlin and Burriss road to continue north	1,000 00	
	Dorion road to extend to northwest part of township	1,000 00	
	Eton Township road	700 00	
	Goldenburg and Day Mills road and bridge	500 00	
	Grand Portage road	500 00	
	Howland Township road	400 00	
	Hymer road to extend in Gillies and O'Connor townships	1,000 00	
	Harrow Township roads	500 00	
	Isbester and Port Finlay roads	500 00	
	Jaffray Township road to extend to Black Sturgeon	500 00	
	Lybster Main road to extend north	500 00	
	May Township, to complete road between cons. 1 and 2, and 5 and 6	500 00	

COLONIZATION AND MINING ROADS.—*Continued.*

No. of Vote.	SERVICE.	To be voted for 1903.	
58	**North Division** — *Continued.*		
	Mississaga River road	300 00	
	McIntyre Township road	750 00	
	McGregor road to extend northwest	500 00	
	Marks road to repair and extend	500 00	
	McIntyre road through Neebing and Oliver	2,000 00	
	Manitowaning and Providence Bay road	300 00	
	Michipicoten River bridge, re-vote	1 000 00	
	Morley road between secs. 10 and 15 westerly	500 00	
	Morley and Ball road	500 00	
	Mather and Tait town-line road	2,000 00	
	Mather and Dobie town-line road	500 00	
	Oliver Township 7th con. road	600 00	
	Pine River and Pattullo road	2,000 00	
	Prince Township roads	300 00	
	Paipoonge and O'Connor road to complete	700 00	
	Parkinson road and bridge	500 00	
	Road between lots 8 and 9 Mather, Dobie north	500 00	
	Roddick, Crozier and Miscampbell	1,500 00	
	Rainy River road	2,000 00	
	Road between cons. 2 and 4 Paipoonge	500 00	
	Scoble Township main road	300 00	
	Stanley road to complete	2,000 00	
	Sanford Township road	300 00	
	Scoble road to extend to Gillies Township	500 00	
	Strange Township, to extend Main road	500 00	
	Silver Water and Meldrum Bay road	500 00	
	Shenstone and Tait road	1,000 00	
	Salter Township roads	400 00	
	Sheguiandah and Manitowaning road	300 00	
	Thessalon River bridge to repair	350 00	
	Vankoughnet road	1,000 00	
	VanHorne Township road to extend	500 00	
	Wabigoon bridge to repair	250 00	
	Wainwright road	500 00	
	Winnipeg River road	300 00	
	Worthington and Blue road	2,000 00	
	Zealand Township main road	400 00	
			$45,750 00
	West Division.		
	Bear Lake road	300 00	
	Baxter roads—To repair 2 roads in Baxter township	300 00	
	Croft road between Con. 12 and 13, lots 30 and 31	200 00	
	Chaffey, Sand Lake road to town-line Perry	200 00	
	Cardwell roads from lot 21 east on 4th and 5th Con., and from Bear Creek westerly	400 00	
	Draper roads from Draper and Oakley town-line west and from McLeans' Corners to Taylor's Hill	400 00	
	Great North road from town-line between McKellar and Hagerman	300 00	

XII. COLONIZATION AND MINING ROADS.—*Concluded.*

No. of Vote.	SERVICE.	To be voted for 1903.	
58	**West Division.**—*Continued.*		
	Great North road between lot 35 on 14th Con. Township Croft north for six miles	300 00	
	Golden Valley and North road	500 00	
	McMurrich, 20 side road	300 00	
	McConkey and Hardy road	200 00	
	McDougall road from McDougall bridge towards Parry Sound	300 00	
	Magnetawan road east of Magnetawan	250 00	
	Mills road 10th Con. between 20th and 25th side line	200 00	
	Main road between Burk's Falls to Magnetawan	300 00	
	Mills and Hardy road from lot No. 32 east	200 00	
	Maple Lake Tallyho road	200 00	
	Muskoka, from Doe Lake westerly	300 00	
	Muskoka road, Washego west	300 00	
	Muskosh road, from town-line Wood and Muskoka towards Bala	400 00	
	Morrison, from town-line Wood towards Kilworthy	200 00	
	Macaulay, from town-line Stephenson and Macaulay 25th side line south	300 00	
	Monck, to repair and make deviation from Port Carling road to town-line Watt	250 00	
	North Sequin River bridge on Orange Valley road, Township Spence	400 00	
	Novar and Ilfracombe road extending eastward	400 00	
	Northeast corner of Township Nipissing from 13th to 14th con	200 00	
	Northern road north of Dunchurch	300 00	
	Perry, 25th side road from 12th to 14th con	200 00	
	Parry Sound road, continuation from last year	300 00	
	Portage road, Trading Lake to Peninsula Lake	300 00	
	Ryerson road between cons. 6 and 7	400 00	
	Rosseau and Nipissing road from lot 109, con. B in Chapman to lot 137, cons. A and B in Lount	300 00	
	Sand Lake road con. 14, Bethune to Beaver Lake bridge	300 00	
	Strong cons. 10 and 11 road	300 00	
	Shawanaga bridge	600 00	
	Stephenson, to repair from Parry Sound road to Port Sydney	400 00	
	South R. bridge on Westphalia road	900 00	
	Trout Lake road	300 00	
			12,200 00
	General Purposes.		
	Temiskaming roads	32,000 00	
	New short roads and repairs	15,000 00	
	Inspection	6,000 00	
	Mining roads	5,000 00	
	To pay balances	1,000 00	
			59,000 00

XIII. CHARGES ON CROWN LANDS.

Amount to be voted, $258,175.00.

No. of Vote.	SERVICE.	1902.	1903
59	Expenditure on account of outside service and surveys....	135,175 00	224,175 00
60	do Mining Development	21,850 00	23,400 00
61	do Parks.....	10,600 00	10,600 00
		167,625 00	258,175 00

59 — Salaries and Expenses.

Service.

	1902.	1903.
Board of Surveyors	200 00	200 00
Agents' salaries and disbursements	24,000 00	26,000 00
Forest ranging	28,000 00	28,000 00
Forest reserves	5,000 00	6,000 00
Fire ranging	33,000 00	33,000 00
Special timber inspection	5,000 00	5,000 00
Cullers' Act	200 00	200 00
Prevention of Export of Saw Logs and Pulp Wood. (*Transferred from Miscellaneous*)	2,000 00	2,000 00
Timber Agencies.		
Agents' salary (Quebec Agency).....	1,400 00	1,400 00
Messenger and Caretaker	150 00	150 00
Contingencies	425 00	425 00
Agent's salary (Ottawa Agency).....	1,250 00	1,250 00
Clerk's do	900 00	900 00
Contingencies	650 00	650 00
Surveys.		
Surveys of Townships in new districts	20,000 00	100,000 00
Maps	4,000 00	4,000 00
Base and meridian lines	4,000 00	10,000 00
Survey of limits chargeable to limit holders.....	2,500 00	2,500 00
Special surveys in Mining Districts	2,500 00	2,500 00

60

Mining Development

	135,175 00	224,175 00
Provincial Geologist.....	.....	3,600 00
Surveyor and Draughtsman, Rat Portage office.....	900 00	900 00
Rent, expenses, stationery, etc. do	400 00	400 00
Inspection of Mines	2,000 00	.....
Inspection of Michipicoten Division.....	1,000 00	1,000 00
Travelling expenses and assistance	3,250 00	3,000 00
Geologist and Mineralogist.....	500 00	500 00
Geological exploration of base lines	500 00	500 00
Expenses assay furnace and assayer, Belleville	2,200 00	2,200 00
Experimental treatment of ores.....	600 00	600 00
Collection of minerals, Parliament Buildings, and cases	500 00	500 00
Diamond drills, working expenses (percentage refunded by persons employing same)	6,000 00	6,000 00
To cover special services and unforeseen expenses	3,000 00	3,000 00
Summer Mining Schools	1,000 00	1,200 00
	21,850 00	23,400 00

XIII. CHARGES ON CROWN LANDS.—*Concluded.*

No. of Vote.	SERVICE.	1902.	1903.
61	**Parks**		
	(Transferred from Miscellaneous.)		
	Algonquin National Park—		
	To cover erection of shelter lodges, salaries of Superintendent and Rangers, transplanting fish, game animals and birds, administration of justice.....	7,800 00	7,800 00
	Rondeau Provincial Park—		
	To cover salaries, Ranger and Assistant, extra ranger during shooting season, purchase of land for road, making and grading the same, game animals and birds, and other expenses	2,800 00	2,800 00
		10 600 00	10,600 00

XIV. REFUND ACCOUNT.

Amount to be voted, $40,105.19.

62	Education.....	1,000 00	1,000 00
63	Crown Lands.....	18,500 00	36,000 00
64	Municipalities' Fund	486 64	243 32
65	Land Improvement Fund.....	2,579 98	2,861 87
		22,566 62	40,105 19

			To be voted for 1903.
62	**Education.**		
	To pay withdrawals from Superannuation Fund		1,000 00
63	**Crown Lands**		
	For payments made to the credit of the Department on account of uncompleted purchases, and afterwards returned to proposed purchasers on purchases not being carried out	25,000 00	
	For two per cent. of timber dues payable to Municipalities for timber cut on road allowances.....	6,000 00	
	Refund to settlers under the settlement of Free Grants Act of 1880	5,000 00	36,000 00
64	**Municipalities' Fund**		
	Amount collected in 1902 ..... 5,502 26		
	Less 20 per cent. commission 1,100 45		
	Vide Stat. Can. 18 Vic. c. 2 and 19 Vic. c. 16. 4,401 81		
	Balance at credit of Fund 31st December, 1902. 118 32		
	4,520 13		
	To be added to grant to Public and Separate Schools (50 Vic. c. 5) 4,276 81		
	To pay widows' pensions for 1901.....	243 32	243 32

XIV. REFUND ACCOUNT.—*Concluded.*

65	Land Improvement Fund		To be voted for 1903.	
	Moneys collected from sale of Crown Lands subject to the Land Improvement Fund for the year ending 31st December, 1901	2,557 25		
	Less 6 per cent. for cost of collection and management	153 43		
		2,403 82		
	One-fifth to the Land Improvement Fund—Vide Stat. Can. 16 Vic. c. 157 and Con. Stat. Can. c. 26	480 76		
			480 76	
	Moneys collected from the sale of Common School Lands subject to the Land Improvement Fund for the year ending 31st December, 1901.....	10,132 41		
	Less 6 per cent. for collection and management	607 94		
	To be distributed as follows :	9,524 47		
	One-quarter to the Land Improvement Fund..	2,381 11	2,381 11	
				2,861 87

XV.—MISCELLANEOUS.

Amount to be voted, $141,652.75.

No. of Vote.	A.	1902.	1903.
66	Collection of revenue for law stamps and licenses.....	3,000 00	3,000 00
	Expenses of elections and election trials.....	86,000 00	10,000 00
	Ontario Rifle Association	1,000 00	1,000 00
	Ontario Artillery Association...	500 00	500 00
	Canadian Military Institute, for printing historical papers..	100 00	100 00
	Manhood Suffrage registration	1,000 00	1,000 00
	Voters' lists	2,500 00	2,500 00
	Gratuities	9,301 00	5,000 00
	Mrs. Mary L. Reynolds, widow of the late Dr. T. Reynolds, Assistant Superintendent of Hamilton Asylum	.....	1,100 00
	Mrs. M. A. Marter, widow of the late John Marter, Engineer of Hamilton Asylum.....	.....	700 00
	Miss A. B. Andison, ex-Teacher, Orillia Asylum	.....	300 00
	Miss Kate R. Oaten, ex-Teacher, Orillia Asylum	.....	187 00
	Miss Annie Lafferty, ex-Teacher, Orillia Asylum	.....	400 00
	Robert Douglas, Night Watch, Orillia Asylum	.....	365 00
	James Rankin, ex-Engineer, Mercer Reformatory	....	600 00
	Miss Isabel Walker, ex-Matron, Deaf and Dumb	.....	500 00
	John Harrington, Night Watch, Blind Institute.....	.....	375 00
	Widow late James Fleming	....	1,200 00
	Mrs. Isabel H. Parlow, widow late E. D. Parlow	.....	1,000 00
	Mrs. J. A. MacCabe, widow late J. A. MacCabe	.....	2,500 00
	Balance Gratuity, late Alex. McLaren.....	.....	400 00
	Balance gratuity to W. Revell, Crown Lands	.....	800 00
	Telephone services	3,400 00	4,000 00
	Removal of patients..... ..	7,000 00	7,000 00
	To cover expenses of arbitration with Canada and Quebec ..	5,000 00	5,000 00
	To pay bounty, destruction of wolves	1,500 00	2,000 00

XV. MISCELLANEOUS.—*Concluded.*

No. of Vote.		1902.	1903.
	Fisheries—		
	Maintenance of patrol tug in northern lakes	3,550 00	3,550 00
	Salaries and disbursements of outside service, travelling expenses, printing, stationery, postage, legal and miscellaneous expenses and re-stocking	22,000 00	22,000 00
	Monument to Governor Simcoe	3,000 00	500 00
	Committee of House for Art Purposes	1,400 00	1,400 00
	Balance compilation Imperial Statutes in force in Ontario	3,500 00	1,025 00
	United Empire Loyalists	200 00	200 00
	Eastern Ontario Good Roads' Association	200 00	200 00
	Forestry Association—Grant	.....	300 00
	Vote on Liquor Act, 1902 (part re-vote)	45,000 00	42,000 00
	Land guides for assisting veterans in locating lands	2,000 00	2,000 00
	Enforcement of Game Protection Act	.....	5,000 00
	Towards securing farm laborers	.....	3,000 00
	Exploration for coal in New Ontario	.....	3,000 00
	Port Arthur & Fort William Exhibition	.....	1,800 00
	Laying switch from street Railway into Agricultural College grounds	.....	4,000 00
	Reception and visit of curlers, Guelph Agricultural College	.....	150 75
	Miscellaneous items previous year	28,831 12	
		229,982 12	141,652 75

XVI.—UNFORESEEN AND UNPROVIDED.

67	To meet unforeseen and unprovided expenses	$50,000 00	$50,000 00
68	To defray the expenses of legislation, public institutions maintenance and the salaries of the officers of the Government and Civil Service for the month of January, 1904	80,000 00	80,000 00

SUPPLEMENTARY ESTIMATES.

1903.

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69 CIVIL GOVERNMENT.

GOVERNMENT HOUSE:		
Stenographer, half time heretofore	$110 00	
CROWN LANDS DEPARTMENT:		
Clerk—Accounts Branch—to correct clerical error in main estimates	100 00	
		$210 00

70 LEGISLATION.

Indemnity for Members	$20,000 00	
Investigation *re* Gamey charges	35,000 00	
Archivist	1,500 00	
		56,500 00

71 ADMINISTRATION OF JUSTICE.

SUPREME COURT OF JUDICATURE:		
Clerk in Chambers, increase of salary	100 00	
OSGOODE HALL:		
Engineer, (in lieu of residence)	300 00	
District of Nipissing, administration of justice, etc	500 00	
		900 00

72 EDUCATION.

Canadian Portrait and Armorial Collection for Historical Library	$600 00	
Salaries of Model School Teachers, three omissions of fixed increases, $50 each.	150 00	
Instruction in Agriculture and Horticulture in grouped rural schools	1,000 00	
To cover the deficit of the University of Toronto for the financial year, 1901-2	10,353 02	
Improvement of Grounds, etc , Normal School, Ottawa	500 00	
Equipment, Mining School, Kingston	7,500 00	
Surveying appliances and other apparatus for School of Science, Toronto	1,500 00	
		21,603 02

73 PUBLIC INSTITUTIONS MAINTENANCE.

Minor increases of salaries omitted from main Estimates in error	$275 00	
LONDON ASYLUM:		
9 additional employees for Infirmary	1,620 00	
		1,895 00

74 AGRICULTURE.

Eastern Fair Ottawa, (conditional on suitable building being provided)	$3,000 00	
International Convention, Farmers' Institute	200 00	

AGRICULTURAL COLLEGE, GUELPH:

Sir Wm. MacDonald Institute, Teaching Staff and other officers	$3 000 00	
Secretary's salary (omitted by clerical error)	100 00	
Additional for fuel and light (College buildings)	3,800 00	
Birds and Insects for Biological Department, (Collections)	400 00	
New boilers for green house	1,000 00	
		$11,500 00

75 HOSPITALS AND CHARITIES.

Prisoners' Aid Association	2,500 00	
Industrial School, Mimico (additional)	785 10	
		3,285 10

76 MAINTENANCE AND REPAIRS OF GOVERNMENT AND DEPARTMENTAL BUILDINGS.

Repairs and Furnishings, Government House	$7,500 00	
Boiler Inspection	200 00	
Firemen in Boiler Room (3) to correct error in main Estimates	120 00	
Porters in corridors, Parliament Buildings	250 00	
Repairs and Furnishings, Department of Agriculture	250 00	
Mechanical Superintendent	100 00	
Vault Fittings, Woods and Forests Branch, Sales Branch, Accounts Branch and Bureau of Mines	2,000 00	
		10,420 00

77 PUBLIC BUILDINGS.

Normal and Model School, Ottawa, covering heating pipes	$300 00	
MIMICO ASYLUM:		
Purchase of McNeil Farm, 73 acres	7,100 00	
ORILLIA ASYLUM:		
Conversion of Gas Works into dwellings	1,500 00	
Cottage for Defectives	5,000 00	
HAMILTON ASYLUM:		
Purchase of adjoining property, two payments of $5,000 each	5,000 00	
OSGOODE HALL:		
Furnishing for Judges' Robing Room	310 00	
AGRICULTURAL COLLEGE, GUELPH:		
Refrigerating Plant as per tender of Linde-British Refrigeration Co	3,200 00	
Air Compressor and heater for boiler	1,050 00	
RAINY RIVER DISTRICT:		
Registry Office, Fort Francis	2,000 00	
Enlargement of Normal and Model School, Toronto	11,000 00	
Experimental Cold Storage Station, (re-vote)	1,500 00	
Dairy School, Kingston, repairs and alterations	2,000 00	
Furnishing Domestic Science Dept., Normal College, Hamilton	1,000 00	
Laundry Machinery, Deaf and Dumb Institute, Belleville	450 00	
		41,410 00

78 PUBLIC WORKS.

Southampton Dock, Saugeen River	1,000 00	
Lock-Up at Bonfield, (re-vote)	800 00	
Rainy River Docks, to complete	730 00	
Lalonde drainage works	900 00	
Douro Tp. drainage works	1,200 00	
Snake River drainage	5,000 00	
Blind River bridge	1,800 00	
Muskrat River, to remove obstructions (re vote)	1,000 00	
Severn River bridge in Morrison, Simcoe County to pay balance	2,000 00	
Seguin River bridge, to rebuild superstructure	3,600 00	
White Fish River, to remove obstructions	250 00	
Black River bridge, to rebuild	1,000 00	
Casimir Creek to remove obstructions	200 00	
Buck Lake Bridge, to rebuild	600 00	
To rebuild bridges in Frontenac, destroyed by recent fires; Clyde River, Mud Lake and Concession 1st, Clarendon	4,000 00	
Kinmount bridge, (re-vote $1,000)	1,500 00	
Gannons Narrows bridge (conditional on local or other grants to complete)	1,000 00	
Big Creek Drainage Scheme, to complete	3,800 00	
		30,380 00

79 COLONIZATION ROADS

Amable de Fond, Bridge on	$300 00	
Bedford Station Road	200 00	
Belle's Bridge Road; Mannuth Road	300 00	
Brudenell, 16th Con	300 00	
Buck Horn Road	300 00	
Burnt River Road	400 00	
Cardiff: Deer Lake Road	300 00	
Ferry Road	150 00	
Hagarty: 5th Concession, between lots 23 and 32	300 00	
Levant Road in Lanark and Addington	900 00	
Massanogu Lake Road	250 00	
Palmerston & S. Canonto Road	200 00	
Ross Tp. 2nd and 5th Con	400 00	
Stanhope Roads	300 00	
Wylie Tp. line to station	300 00	
People's road, Cora and Pennefather	500 00	
Bridge, White Fish River	250 00	
Shedden Tp. road to open	500 00	
Salter Tp. roads	500 00	
Michipicoten Bridge, to complete	600 00	
Muskoka Road, Washago West	300 00	
Huntsville Bridge approaches	500 00	
Baysville Bridge, conditional on balance cost being contributed by municipality	1,000 00	
Pine Lake Road	250 00	
Appleby and Jennings	500 00	
Blezard Road	300 00	
Brazeau Road	250 00	
Capreol and Hanner	400 00	
Casimir & Jennings	500 00	
Hugel, Con. 3	300 00	
Hurtubise Road	200 00	
Fort Frances and Rainy Lake	350 00	
Burriss Road	800 00	
		12,900 00

80 CHARGES ON CROWN LANDS.

Fire Ranging, Temiskaming & Northern Ont. Ry	$7,000 00	
Rondeau Park Road	500 00	
		7,500 00

81 MISCELLANEOUS.

Statue: late Lieutenant-Governor	$5,000 00	
Funeral expenses late Lieutenant-Governor	1,300 00	
Industrial Exhibition building	10,000 00	
Clerk of the Crown in Chancery *re* referendum vote	500 00	
Gratuities:		
Retiring allowance to M. W. Doherty, Associate Professor in Biology	500 00	
Toronto Asylum: Gratuity to R. Bruce	575 00	
Boys Reformatory:		
W. A. Smith, carpenter for 26 years	600 00	
Wm. Sale, baker for 14 years	450 00	
R. C. Trott, engineer for 22 years	600 00	
Family of late A. H. Dymond Principal	1,800 00	
Family of late C. A. Stewart	1,100 00	
Laboratory, Public Health Department	1,900 00	
Law Stamp Distributor, Co. York, salary and expenses	2,200 00	
Rex v. Huggard. Payment to J. Wagner out of estreated bail money	160 00	
Rex v. Huggard. Payment to Philip Jamieson out of estreated bail money.	32 00	
Attorney General v. Hilliard—Cameron v. McVeigh. Plaintiff's costs of action on bond given in Baby v. Cameron. (Re-vote)	281 41	
Attorney-General v. Scully. Costs *re* application to Supreme Court *re* leave to appeal	100 00	
Contribution toward Queen Victoria Statue, Hamilton	1,000 00	
		28,098 41
Total		$226,601 53

SUPPLEMENTARY ESTIMATES.

1903.

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69 CIVIL GOVERNMENT.

GOVERNMENT HOUSE:		
Stenographer, half time heretofore	$110 00	
CROWN LANDS DEPARTMENT:		
Clerk—Accounts Branch—to correct clerical error in main estimates	100 00	
		$210 00

70 LEGISLATION.

Indemnity for Members	$40,000 00	
Investigation *re* Gamey charges	35,000 00	
Archivist	1,500 00	
		76,500 00

71 ADMINISTRATION OF JUSTICE.

SUPREME COURT OF JUDICATURE:		
Clerk in Chambers, increase of salary	$100 00	
OSGOODE HALL:		
Engineer, (in lieu of residence)	300 00	
District of Nipissing, administration of justice, etc	500 00	
		900 00

72 EDUCATION.

Canadian Portrait and Armorial Collection for Historioal Library	$600 00	
Salaries of Model School Teachers, three omissions of fixed increases, $50 each	150 00	
Instruction in Agriculture and Horticulture in grouped rural schools	1,000 00	
To cover the deficit of the University of Toronto for the financial year, 1901-2	10,353 02	
Improvement of Grounds, etc., Normal School, Ottawa	500 00	
Equipment, Mining School, Kingston	7,500 00	
Surveying appliances and other apparatus for School of Science, Toronto	1,500 00	
		21,603 02

73 PUBLIC INSTITUTIONS MAINTENANCE.

Minor increases of salaries omitted from main Estimates in error	$275 00	
LONDON ASYLUM:		
9 additional employees for Infirmary	1,620 00	
		1,895 00

74 AGRICULTURE.

Eastern Fair, Ottawa, (conditional on suitable building being provided)	$3,000 00	
International Convention, Farmers' Institute	200 00	

AGRICULTURAL COLLEGE, GUELPH:

Sir Wm. MacDonald Institute, Teaching Staff and other officers	$3,000 00	
Secretary's salary (omitted by clerical error)	100 00	
Additional for fuel and light (College buildings)	3,800 00	
Birds and Insects for Biological Department (Collections)	400 00	
New boilers for green house	1,000 00	
		$11,500 00

75 HOSPITALS AND CHARITIES.

Prisoners' Aid Association	$2,500 00	
Industrial School, Mimico (additional)	785 10	
		3,285 10

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Repairs and Furnishings, Government House	$7,500 00	
Boiler Inspection	200 00	
Firemen in Boiler Room (3) to correct error in main Estimates	120 00	
Porters in corridors, Parliament Buildings	250 00	
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Mechanical Superintendent	100 00	
Vault Fittings, Woods and Forest Branch, Sales Branch, Accounts Branch and Bureau of Mines	2,000 00	
		10,420 00

77 PUBLIC BUILDINGS.

Normal and Model School, Ottawa, covering heating pipes	$300 00	
MIMICO ASYLUM:		
Purchase of McNeil Farm, 73 acres	7,100 00	
ORILLIA ASYLUM:		
Conversion of Gas Works into dwellings	1,500 00	
Cottage for Defectives	5,000 00	
HAMILTON ASYLUM:		
Purchase of adjoining property, two payments of $5,000 each	5,000 00	
OSGOODE HALL:		
Furnishing for Judges' Robing Room	310 00	
AGRICULTURAL COLLEGE, GUELPH:		
Refrigerating Plant as per tender of Linde-British Refrigeration Co	3,200 00	
Air Compressor and heator for boiler	1,050 00	
RAINY RIVER DISTRICT:		
Registry Office, Fort Francis	2,000 00	
Enlargement of Normal and Model School, Toronto	11,000 00	
Experimental Cold Storage Station, (re-vote)	1,500 00	
Dairy School, Kingston, repairs and alterations	2,000 00	
Furnishing Domestic Science Dept., Normal College, Hamilton	1,000 00	
Laundry Machinery, Deaf and Dumb Institute, Belleville	450 00	
		41,410 00

78 PUBLIC WORKS.

Southampton Dock, Saugeen River	1,000 00	
Lock-Up at Bonfield (re-vote)	800 00	
Rainy River Docks, to complete	730 00	
Lalonde drainage works	900 00	
Douro Tp. drainage works	1,200 00	
Snake River drainage	5,000 00	
Blind River bridge	1,800 00	
Muskrat River, to remove obstructions (re-vote)	1,000 00	
Severn River bridge in Morrison, Simcoe County to pay balance	2,000 00	
Seguin River bridge, to rebuild superstructure	3,600 00	
White Fish River, to remove obstructions	250 00	
Black River Bridge, to rebuild	1,000 00	
Casimir Creek, to remove obstructions	200 00	
Buck Lake Bridge, to rebuild	600 00	
To rebuild bridges in Frontenac, destroyed by recent fires; Clyde River, Mud Lake and Concession 1st. Clarendon	4,000 00	
Kinmount bridge, (re-vote $1,000)	1,500 00	
Gannons Narrows bridge (conditional on local or other grant to complete)	1,000 00	
Big Creek Drainage Scheme, to complete	3,800 00	
		30,380 00

79 COLONIZATION ROADS.

Amable de Fond, Bridge on	$300 00	
Bedford Station Road	200 00	
Belle's Bridge Road; Mannuth Road	300 00	
Brudenell, 16th Con	300 00	
Buck Horn Road	300 00	
Burnt River Road	400 00	
Cardiff: Deer Lake Road	300 00	
Ferry Road	150 00	
Hagarty: 5th Concession, between lots 23 and 32	300 00	
Levant Road in Lanark and Addington	900 00	
Massanogul Lake Road	250 00	
Palmerston & S. Canonto Road	200 00	
Ross Tp. 2nd and 5th Con	400 00	
Stanhope Roads	300 00	
Wylie Tp. line to station	300 00	
People's road, Cora and Pennefather	500 00	
Bridge, White Fish River	250 00	
Shedden Tp. road to open	500 00	
Salter Tp. roads	500 00	
Michipicoten Bridge, to complete	600 00	
Muskoka Road, Washago West	300 00	
Huntsville Bridge approaches	500 00	
Boysville Bridge, conditional on balance cost being contributed by municipality	1,000 00	
Pine Lake Road	250 00	
Appleby and Jennings	500 00	
Blezard Road	300 00	
Brazeau Road	250 00	
Capreol and Hanner	400 00	
Casimir & Jennings	500 00	
Hugel, Con. 3	300 00	
Hurtubise, Road	200 00	
Fort Frances and Rainy Lake	350 00	
Burriss Road	800 00	
Macdonald Bridge, Black River, Tp. Rama	1,000 00	
		13,900 00

80 CHARGES ON CROWN LANDS.

Fire Ranging, Temiskaming & Northern Ont Ry	$7,000 00	
Rondeau Park Road	500 00	
		7,500 00

81 MISCELLANEOUS.

Statue: late Lieutenant-Governor	$5,000 00	
Funeral expenses late Lieutenant-Governor	1,300 00	
Industrial Exhibition Building	10,000 00	
Clerk of the Crown in Chancery *re* referendum vote	500 00	
Gratuities:		
Retiring allowance to M. W. Doherty, Associate Professor in Biology	500 00	
Toronto Asylum: Gratuity to R Bruce	575 00	
Boys Reformatory.		
W. A. Smith, carpenter for 26 years	600 00	
Wm. Sale, baker for 14 years	450 00	
R. C. Trott, engineer for 22 years	600 00	
Family of late A. H. Dymond, Principal	1,800 00	
Family of late C. A. Stewart	1,100 00	
Laboratory, Public Health Department	1,900 00	
Law Stamp Distributor, Co. York, salary and expenses	2,200 00	
Rex v. Huggard. Payment to J. Wagner out of estreated bail money	160 00	
Rex v Huggard. Payment to Philip Jamieson out of estreated bail money	32 00	
Attorney-General v. Hilliard—Cameron v. McVeigh. Plaintiff's costs of action on bond given in Baby v. Cameron. (Re-vote)	281 41	
Attorney-General v. Scully, Costs *re* application to Supreme Court *re* leave to appeal	100 00	
Contribution toward Queen Victoria Statue, Hamilton	1,000 00	
		28,098 41
Total		$247,601 53

REPORT

OF THE

COMMISSIONER OF CROWN LANDS

OF THE

PROVINCE OF ONTARIO

FOR THE YEAR

1902.

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
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Printer to the King's Most Excellent Majesty.
1903.

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REPORT

OF THE

COMMISSIONER OF CROWN LANDS

OF THE

PROVINCE OF ONTARIO

FOR THE YEAR

1902.

To His Honour the Honourable Sir Oliver Mowat, G. C. M. G., Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

As required by law, I submit for the information of Your Honour and the Legislative Assembly, a report for the year ending on the 31st December, 1902 of the management, etc., of the Crown lands of the Province.

CLERGY LANDS.

The area of clergy lands sold during the year was 924 acres, aggregating in value $731.30. The collection on account of these and former sales was $5,502.26. (See appendix No. 3, page 4).

COMMON SCHOOL LANDS.

The area of common school lands sold during the year was 104 acres, the value of which was $187.00, the collection on account of these and former sales was $12,931.31. (See appendix 3, page four).

GRAMMAR SCHOOL LANDS.

The area of these lands sold during the year was 317 acres at a price equalling $298.00. The collection on account of these sales and those of former years was $1,100.20. (See appendix No. 3, page 4).

UNIVERSITY LANDS.

The area of these lands sold during the year was 5,722 acres, the aggregate value of which was $2,881.25, the collection on account of these and sales of former years was $2,014.76. (See appendix No. 3, page 4).

Railway Lands.

There were no sales of railway lands. The collection on account of sales in former years was $83.38. (See appendix No. 3, page 4).

Crown Lands.

During the year just closed there were sold for agricultural purposes 66,868 acres, aggregating in value $44,913.67. The collection on account of these sales and those of former years, was $58,892.31. There were sold for mining purposes during the year 3,985 acres, the aggregate value of which was $8,202.52. There was received on account conversion of mining leases into patents $9,594.75. The gross collection on account of mining sales and conversions of leases into patents was $19,076.87. There were leased for mining purposes 25,548 acres at a rental of $25,288.38. The collection on account of rental of these and former leases was $64,436.94. There were leased of Crown lands 968¾ acres. New rent, $67.00. Collection on account of this and leases of former years amounted to $732.00. The total area of lands disposed of during the year was 104,436¾ acres, the value of which was $92,163.87. The total collection on account of Crown lands was $164,770.03. (See appendix No. 5, page 4).

During the past year there has been a large influx of settlers into the newer parts of the province. The Temiskaming and Rainy River Districts have attracted the largest number; a considerable number have also settled in the region west of North Bay, and along the territory bordering on Lake Huron. In the Temiskaming region some 1,400 locations for farming purposes have been taken up. At 160 acres each, this would represent 224,000 acres. In the great majority of cases small deposits are made, not sufficient to pay the first instalment and enable the Department to carry out a sale. The agent reports that some 700 heads of families have come in during the year and that the total increase in population is estimated at from 3000 to 3500 souls. Nearly all the land in the townships previously surveyed having been taken up, additional townships were laid out during the past summer, and a considerable proportion of the lands in these townships has also been taken up by settlers. The progress of this settlement is marked and healthy. Several small villages have sprung up during the year, such as Millberta in Kerns township, Tomstown in Ingram, and Long Lake at the foot of the lake of that name. Although large expenditures were made and every effort used to provide necessary roads to open up the country, settlers flowed in so rapidly that roads were not always available where settlers desired to go, and, perhaps, this retarded settlement a little. The building of the Temiskaming and Northern Ontario Railway will, no doubt, cause a still greater inflow of people next year. In order to provide lands for all who may desire to settle there, a considerable number of new townships will require to be surveyed.

In the Rainy River Free Grant district some 500 heads of families took up land. A considerable number of these came from the United States, and some from Manitoba and the Northwest. The increased travelling facilities afforded by the Canadian Northern Railway, and the abundant employment given by its construction, have done much to promote the present prosperity of this important section of the Province. As the country is settled up the area of good land is found to be much larger than it was thought to be when settlement first commenced in Rainy River district.

In the Port Arthur region the inflow of settlers has not been so large as in the year 1900, the reason being that the best land in the townships surveyed has been taken up. New surveys are required in this district also.

A considerable number of people have taken up land in the Free Grant districts of Muskoka, Parry Sound, Nipissing, Renfrew, etc. The number of cancellations is rather large, but a considerable proportion of them are really surrenders in favour of persons who, having a little capital, have preferred to buy farms with some improvements on them. The old settler takes the money thus obtained and moves further back to commence again. It does not therefore follow that there is a loss of population every time a location is cancelled.

All kinds of timber are becoming valuable and marketable as the back country is pierced by railways, the consequence has been that settlers have been able to dispose of their timber other than pine and apply the proceeds to assist them in clearing their lands. For the last few years wages have been abnormally high, and employment plentiful, and conditions appear favourable to the continuance of this state of things for some time yet. Under all the circumstances, perhaps there never was a more favourable opportunity to settle in the newer parts of the Province with hopes of success than is now presented.

Military Land Grants.

Under the legislation 1st Edward VII, Chapter 6, some six thousand six hundred certificates authorizing parties to select their land were completed and issued. A number of those to whom certificates were issued have made their selections and been entered for their land. The labour incident to receiving and perfecting these applications has been enormous. Some 11,400 letters have been received and answered in connection with these land grants. A considerable number of applications are still under consideration and will be dealt with as soon as possible.

The Mineral Industry.

Development of the mineral resources of the Province goes on apace. The most important branches of the industry—those concerned with the mining of iron, copper and nickel—made substantial progress during 1902, the output of all three being considerably greater than in any previous year. The nickel mines of the Sudbury region are growing in importance, and the new deposits

which are being opened up equal, if they do not surpass, in richness any that have yet been worked. The Canadian Copper Company, the Mond Nickel Company and the Lake Superior Power Company are the operating concerns. The former is now part of the International Nickel Company, which exercises a controlling influence on the nickel market of America. The Canadian Copper Company's matte is further concentrated in the Ontario Smelting Works, an establishment at Copper Cliff under the same management, making a product containing about 70 per cent of metallic contents. The Bessemer matte produced by the Mond Company is shipped to England and there refined by the Mond process. What is known as the northern nickel range has received a good deal of attention during the year. It is believed that it contains some very large and important deposits of ore. The output of nickel and copper for the year, the former wholly and the latter chiefly, contained in the Sudbury nickel-copper mattes, was 5,945 tons nickel valued at $2,210,961, and 4,932 tons copper worth $686,043.

The production of iron ore was considerably greater in 1902 than in any previous 12 months, being 359,286 tons worth $518,445 as against 273,538 tons worth $174,428 in 1901. The chief source of the ore produced was the Helen mine in the Michipicoton Mining Division, where several other valuable deposits of hematite are reported to have been made. Prospecting for iron ore has been greatly stimulated by the discovery of considerable bodies of magnetite of good quality in the township of Hutton, northwest of Lake Wahnipitae, and there is likely to be much activity shown during the coming season in searching for deposits of workable ore in this and other of the iron ranges of northern and northwestern Ontario. The similarity between the iron-bearing rocks of Ontario and those on the south shore of Lake Superior has attracted the notice of many men interested in iron mining in the United States, some of whom are now planning to make extensive explorations in Ontario in the near future.

The production of pig iron during 1902 was 112,667 tons valued at $1,683,-051, and of steel 68,802 tons valued at $1,610,931.

Collections.

The total collections of the Department, from all sources was $1,501,518.23, of this $164,770.03 was derived from sales and leases of Crown lands; $1,331,-352.10 was derived from timber, and $5,396.10 from miscellaneous sources. (See Appendix 4, page 5.)

Disbursements.

The total disbursements of the Department were $295,050.89. This includes $34,097.31 for Fire Ranging; $31,962.48 for Forest Ranging; $32,-887.97 for Surveys; $21,090.19 for Refunds It also covers $102,581.31, special services under the direction of the Department, such as Mining Schools, $47,191.80; Iron Mining Act, $25,000; Parks, $12,368.72; Diamond Drill, $5,451.45; Liverpool agency, $4,777.25. (See Appendix No. 6, page 7.)

Woods and Forests.

The total revenue collected on account of this branch of the service was $1 331,352.10, of this, $1,078,273,35 came from timber dues; $227,667.84 from bonuses; $61,039.41 from ground rent, and from transfer fees, $4,371.50. (See Appendix No. 4, page 5.) The revenue collected on account of timber dues is the largest in the history of the Province. The collection on account of bonuses is derived from timber sales of previous years.

The lumber trade has been in a very prosperous state during the year. Good prices have prevailed, and the supply of lumber was scarcely equal to the demands of the buyers. Very small stocks have been carried over, and the season of 1903 will open with clean mill yards. The output of several large mills has been sold in advance, and on the whole, the prospects for the coming year seem to be of the most promising character.

The community at large is benefitted by the prosperity of this most important branch of our trade. The sales of lumber abroad bring in enormous sums, all of which are spent amongst our people. Wages in the lumber woods, not many years ago, ran from $14 to $18 a month. This year they ran from $25 to $32, and even then men were hard to obtain. Teams were difficult to hire, even at the large wages offered, so that the lumbermen were obliged to purchase great numbers of horses, thereby increasing the value of these indispensible animals. All kinds of supplies increased in price, so that although prices of lumber and timber were high and the markets good, the cost of getting out the logs, delivery at the mills, sawing and shipping the lumber, was much enhanced, leaving the lumbermen no more than a fair profit.

The expectation for this winter is, that there will be as large an output as that of last year, although men are hard to get even at wages slightly in advance of last year's. During the year two or three large new sawmills were put in course of erection, and all the old mills were fully employed.

Pulp Wood.

The Sault Ste. Marie Pulp and Paper Mills have taken out large quantities of pulp wood, and its mills have been in operation almost continuously during the year. The Spanish River Pulp Company has its mill well under way, and is taking out a stock of pulpwood this winter. The Sturgeon Falls Pulp Company, having settled all its litigation, is proceeding with the erection of new mills, and is also taking out a large stock of pulpwood. The Nepigon Pulp Company is preparing for the erection of its mills by taking out the necessary timber for the purpose. The Keewatin Pulp Company has not felt able to proceed with its developments. The Montreal River Pulp Company has not yet commenced the erection of its mills, though it is understood to be preparing to do so. The Blanche River Pulp Company has not felt warranted in going on: the settlement on the Blanche River has proceeded so rapidly that the territory

covered by its concession has passed into the possession of settlers who own and control the timber. The only concession granted during the year has been in the Rainy River District to the Rainy River Pulp and Paper Company. This company is composed of representative men and proposes to start development immediately. During the year hemlock, and hemlock bark, were, by regulation, required to be used or manufactured in Canada when cut upon licensed lands.

Fire Ranging.

The number of licensees who had fire rangers on their limits last season was 90. The number of rangers employed on licensed lands was 271. In addition some 15 were employed on Crown lands, forest reserves, etc. The total cost of the service for last season, so far as accounts have been received and paid, was $34,097.31. Some accounts did not come in in time to be paid and will therefore appear in next year's report. During the past season there was a great deal of wet weather and no serious fires occurred, although some 50 fires are reported as having been extinguished by the ranging staff, some of them in localities where large quantities of pine were standing on unlicensed lands of the Crown. Had there been no one there to put out these fires, it is quite probable that enormous losses might have been entailed on the Crown and on its licensees. The great benefit which was expected from our system of fire ranging was not the extinguishment of forest fires on a large scale, because once a fire gets headway in a pine forest it would be impossible for an army of men to stop it. What was hoped for and what has been accomplished is, that every person travelling in the back woods, prospector, hunter, tourist, etc., is made well aware of what the law is, and what care he is expected to exercise in the use of fire, also that he is being watched and will be punished if he is found breaking the law. On every portage route the proclamations stare him in the face, and when the rangers meet him he is cautioned and handed a pamphlet copy of the Act. Squatters and settlers are also well acquainted with the law and what is expected of them. Thus a knowledge of the law and the necessity for care and caution in the use of fire has been spread abroad and the effects of this education are plainly visible. The licensees have, as a rule, made good selections of the men who act as fire rangers and no friction of any serious moment has occurred between fire rangers and settlers. Occasionally a report reaches the Department that a fire ranger is doing other work than that for which he is being paid. Such cases are always investigated and are usually found to be without foundation.

The losses caused by fire this season are of small moment and the timber damaged will all be cut. $10,000 is approximately the damage reported to have been done by fire during the past season.

The risk carried by every timber licensee who has purchased and paid for a considerable quantity of pine is enormous, and a comparatively wealthy man

might by one fire, due to carelessness perhaps, be reduced to beggary. This risk, where there is no settlement or prospecting, though small, is a matter of anxiety, but with careful fire ranging the risk becomes almost non-existent. But where his limit is in a settled section, or where mining is active, he is in constant danger of losing his entire investment. On this class of property he can obtain no insurance, he must carry the entire risk himself although he cannot, under the law, prevent prospecting or travelling of tourists over his property. The only protection he has is to be found in the energy, honesty and activity of his fire rangers. It is therefore inconceivable that the system, under which such protection is possible, would be abused to any extent by licensees.

During the year cullers' examinations were held at Thessalon, Rat Portage, Huntsville and Spragge. Fifty-one candidates were found qualified, and granted certificates authorizing them to act as cullers.

PUBLIC PARKS.

The reports of the superintendents of the Algonquin and Rondeau Provincial Parks will be found in Appendices 36 and 37, page 69.

CROWN SURVEYS.

The following Crown surveys have been carried out this year :—

In the District of Algoma a base line has been run from the north-west angle of the Township of Craig due west to the north-east angle of the Township of Curtis, a distance of ninety miles. From this base line certain meridian lines have been run in the vicinity of the Mississaga River, to locate a large tract of pine timber. Certain outlines of townships were also run in the District of Algoma east of Onaping Lake west of the Township of Hutton. In the District of Nipissing a meridian line was run due north from the north-west angle of the Township of Eby over the height-of-land to the River Abitibi. In the District of Nipissing the Townships of Cane, Catharine, Davidson, Eby, Gross, Lundy, Otto, Truax and Tudhope have been sub-divided into lots of 320 acres each. In the District of Thunder Bay the Township of Macgregor has been partly re-surveyed ; and the Township of Ames on the Canadian Pacific Railway near Lake Shebandowan, has been sub-divided into lots of 320 acres each. In the District of Rainy River the Township of Melick, north of Rat Portage, has been sub-divided into lots of 320 acres each : and on the Rainy River the Townships of Shenston and Tait have been re-surveyed and posted for the convenience of parties taking up land therein. The line between the Districts of Algoma and Thunder Bay has been partly run due south from the Canadian Pacific Railway on the line of longitude eighty-five degrees, twenty minutes west from Greenwich, this being the limit between the said judicial districts under the provisions of the Statutes of Ontario, First Edward VII, cap. 12, section 2. Several other minor surveys have been performed during the year.

The surveyors' report of survey will be found in Appendices 18-35 inclusive, pages 38-69 inclusive.

MUNICIPAL SURVEYS.

The Department has during the year, on the petitions of the municipalities of the County of Lanark, the united Counties of Prescott and Russell, and the Townships of Fitzroy, East Gwillimbury, Hibbert, Hinchinbrooke, King, Ross and Toronto, issued instructions for the survey of portions of townships within said municipalities, viz., that part of the boundary line between the Townships of Beckwith and Drummond, in the County of Lanark, from the fourth concession line to the eighth concession line; part of the boundary line between the Townships of Cumberland and Clarence, in the County of Russell; the concession road allowance between the ninth and tenth concessions of the Township of Fitzroy, from side road between lots numbers five and six to side road between lots numbers ten and eleven; the side road allowance between lots numbers five and six in the fifth concession of East Gwillimbury; also the side road allowance between lots numbers thirty and thirty-one in the seventh concession of the Township of East Gwillimbury; portion of the eastern boundary line of the Township of Hibbert; the line between the fourth and fifth concessions of the Township of Hinchinbrooke, from lot number fourteen northerly to lot number twenty-three; the original road allowance between the first and second concessions in that part of the Township of West Gwillimbury (now in the Township of King); the allowance for road between the eighth and ninth concessions of the Township of Ross, from lot number one to lot number five inclusive: to survey and establish certain streets east of the River Credit, in the Village of Port Credit, in the Township of Toronto; also a road allowance between Dundas street and the first concession south of Dundas street on the Indian Reservation in the said Township of Toronto.

The following municipal surveys have been confirmed during the year under the provisions of the Revised Statutes of Ontario, 1897, cap. 181, sec. 14, subsec. 4, such surveys so confirmed being final and conclusive upon all parties; the allowance for road between lots numbers twelve and thirteen in the fifth concession of the Township of West Flamborough; the line between the fourth and fifth concessions of the Township of Hinchinbrooke, from lot number fourteen, northerly, to lot number twenty-three; part of the concession line between the eighth and ninth concessions of the Township of South Sherbrooke, from lot number ten, westerly, to the boundary line of the Township of Oso; the blank concession line, between concessions numbers one and two, west of Muskrat Lake; in the Township of Westmeath, between side road allowance between lots numbers ten and eleven, and side road allowance between lots numbers fifteen and sixteen; also the blank concession line between concessions numbers three and four, east of Muskrat Lake, in the said Township of West-

meath, from the allowance for road between lots numbers ten and eleven, to the allowance for road between lots numbers fifteen and sixteen.

The particulars relating to these surveys will be found in appendices 14-15 pages 32-34, inclusive.

MINING AND OTHER SURVEYS.

The Mines' Act of 1897 and amendments thereto require that applicants to purchase or lease mining lands in unsurveyed territory shall file in the Department surveyor's plans (in duplicate) of their proposed mining locations, with field notes and descriptions by metes and bounds before any sale or lease can be carried out, and under Orders-in-Council, dated 23rd of January, 1892; 3rd December, 1892; 29th of April, 1886; and 22nd of September, 1893; applicants to purchase islands or locations for agricultural purposes in unsurveyed territory are required to file surveyor's plan (in duplicate) of their locations, which are to be of the form and size, wherever practicable, prescribed by the Mines' Act, together with the necessary affidavits.

Under the above Act and regulations, in the districts of Parry Sound, Nipissing, Algoma, Rainy River and Thunder Bay, an area of 6,129 27 100 acres has been sold and patented during the year, for which the sum of $12,163. 50 has been received; and an area of 12,559½ acres has been leased at $1 per acre for the first year's rental.

E. J. DAVIS,
Commissioner.

Department of Crown Lands,
Toronto, *December 31, 1902.*

APPENDICES.

(Appendix No. 1.)

Return of Officers and Clerks of the Department of Crown Lands for the year 1902.

Branch.	Name.	Designation.	When Appointed.	Salary per Annum.	Remarks.
				$	
	Hon. E. J. Davis	Commissioner	1899, Oct. 21	4,000	
	Aubrey White	Assistant Commissioner	1882, Jan. 1	3,000	
	George Kennedy	Law Clerk	1872, Feb. 1	2,100	
	G. W. Yates	Clerk and Secretary	1899, Feb. 25	1,200	
	W. A. H. Findlay	Secretary	1897, May 8	1,000	Resigned, 1st Oct., 1902.
Sales and Free Grants	J. J. Murphy	Chief Clerk	1872, May 1	1,900	
	E. S. Williamson	Clerk	1889, May 1	1,300	
	W. R. Ledger	Clerk	1894, Feb. 5	850	
	W. S. Sutherland	Clerk	1902, June 13	1,000	
	M. Bengough	Stenographer	1896, Oct. 23	500	
Surveys and Patents	G. B. Kirkpatrick	Director of Surveys	1866, Jan. 30	2,200	
	W. Revell	Clerk	1871, Oct. 2	1,300	Died, July 26, 1902.
	J. F. Whitson	Surveyor and Draughtsman	1902, Sept. 1	1,300	
	W. J. Lewis	Clerk	1872, Feb. 5	1,000	
	J. B. Proctor	Clerk	1897, Jan. 15	750	
	C. S. Jones	Chief Clerk of Patents	1890, May 22	1,600	
	C. E. Burns	Clerk	1900, April 9	750	
Woods and Forests	J. A. G. Crozier	Chief Clerk	1867, Dec. 1	1,800	
	Theo. C. Taylor	Clerk	1888, Aug. 1	1,450	
	Kenneth Miller	Clerk	1891, Nov. 1	1,000	
	Alex. McLaren	Clerk	1890, May 22	900	Died, Sept. 20, 1902.
	J. B. Cook	Clerk	1898, Aug. 1	1,100	
	R. H. Browne	Clerk and Archivest	1900, Mar. 2	1,000	
	H. Gilliard	Clerk	1900, April 9	750	
Accounts	D. G. Ross	Accountant	1861, April 15	1,800	
	E. Leigh	Clerk	1873, Dec. 20	1,200	
	M. J. Ferris	Clerk	1892, April 1	1,050	
	A. E. Robillard	Clerk	1894, May 4	800	
	Frank Yeigh	Registrar	1880, Mar. 1	1,500	
	Hy. Cartwright	Clerk	1893, Oct. 1	1,050	
Bureau of Mines	T. W. Gibson	Director	1891, June 19	2,200	
	W. E. H. Carter	Secretary	1901, Feb. 10	1,000	
	Anne Moffatt	Stenographer	1901, Mar. 1	450	
Colonization and Forestry	Thomas Southworth	Director	1895, April 17	1,800	
	D. Spence	Sec. & Intelligence Officer	1873, Jan. 13	1,500	Died, May, 14, 1902.
	M. G. Dickson	Stenographer	1900, Oct. 1	400	Resigned, Oct. 1, 1902.
	N. McLeod	Stenographer	1902, Dec. 15	400	
	A. Robertson	Clerk	1882, Dec	900	
Immigration	R. M. Persse	Constable at Station	1899, Jan	500	
	H. Brophy	Messenger and Caretaker	1898, Oct. 1	600	

D. GEO. ROSS,
Accountant.

AUBREY WHITE,
Assistant Commissioner.

DEPARTMENT OF CROWN LANDS,
TORONTO, 31st December, 1902.

(Appendix No. 2.)

List of Free Grants Agents and Agents for the Sale of Lands for the year 1902.

Name.	District or County.	Date of Appointment.	Salary per Annum.	Remarks.
Annis, A. E	Part of District of Rainy River	1895, November 28th	200 00	Agent for sale of land.
Armstrong, Jno	Lake Temiscaming, District of Nipissing	1893, October 27th	500 00	Agent for sale of land.
Best, S. G	Part of Parry Sound District	1875, March 23rd	500 00	
Bishop, H. E	Town plot of Hilton	1896, March 23rd		Without salary.
Brodie, D. M	Part of Algoma District	1899, March 20th	500 00	Mining land agent. Resigned, Apr. 19, 1902.
Buchanan, Thos	" Algoma District	1901, November	300 00	Agent for sale of land.
Clarlesworth, L. C	District of Rainy River	1897, August 13th	910 00	Mining land agent.
Chapman, E. A	" Rainy River	1896, September 23rd	200 00	Died, April, 1902.
Campbell, W	Part of District of Rainy River	1897, August 12th	300 00	
Cockburn, J. D	" Nipissing District	1884, May 21st	500 00	Agent for sale of land.
Eastland, T. G	" County of Peterborough	1896, July 10th	300 00	
Ellis, James	" Parry Sound District	1898, December 1st	500 00	
Hamilton, Geo	St. Josephs Island	1890, September 20th	200 00	Died, 3rd May, 1902.
Handy, E	Part of Parry Sound District	1879, January 3rd	500 00	
Hartle, Wm	" Victoria	1895, November 28th	350 00	
Holland, C. J	Town plot of Alberton	1892, October 12th	300 00	Agent for sale of land.
Hamilton, Alex	Part of Nipissing District	1901, May 18th	100 00	Agent for sale of land.
Kirk, Wm	" Muskoka District	1892, July 28th	500 00	
Patton W. H.	Town plot of Killarney	1895, March 2nd	Commission..	Agent for sale of land.
Ruttan, J. F	Part of Thunder Bay District	1889, May 16th	250 00	
Ryan, T. J	" Algoma District	1888, June 15th	500 00	Mining and land agent.
Scarlett, J. S	" Parry Sound District	1880, June 17th	500 00	
Stephenson, Wm	" Rainy River District	1896, June 6th	300 00	
Stewart, C. R	" Hastings and Peterborough	1882, May 1st	500 00	
Stewart, James	" Renfrew	1891, September 26th	300 00	
Tait, J. R	" Hastings	1869, May 28th	300 00	
Whelan, Jno	" Renfrew	1884, September 19th	300 00	
Wood, A. W	" Frontenac and Addington	1892, December 1st	100 00	Also in charge of E. Forest Reserve
Young, H. N	" Algoma District	1901, November 23rd	300 00	

D. GEO. ROSS, Accountant.

AUBREY WHITE, Assistant Commissioner.

DEPARTMENT OF CROWN LANDS, TORONTO, 31st December, 1902.

Appendix No. 3.

STATEMENT of Lands Sold and Leased, Amount of Sales, and Amount of Collections on Sales and Leases for the year 1902.

Service.	Acres sold and leased.	Amount of sales and leases.	Amount of collections on sales and leases.
Crown Lands—		$ c.	$ c.
Agricultural	66,868	44,913 67	58,892 31
Mining	3,985	8,202 52	19,076 87
Converted Leases		9,594 75	
Clergy Lands	924	731 30	5,502 26
Common School Lands	104	187 00	12,931 31
Grammar School Lands	317	298 00	1,100 20
University Lands	5,722	2,881 25	2,014 76
Railway Lands			83 38
Leases—			
Mining Leases	25,548	25,288 38	64,436 94
Crown Leases and Licenses of Occupations	968¾	67 00	732 00
	104,436¾	92,163 87	164,770 03

AUBREY WHITE,
Assistant Commissioner.

D. GEO. ROSS,
Accountant.

DEPARTMENT OF CROWN LANDS,
TORONTO, 31st December, 1902.

Appendix No. 4.

STATEMENT of the Revenue of the Department of Crown Lands for the year 1902.

Service.	$ c.	$ c.	$ c.
LAND COLLECTIONS.			
Crown Lands—			
Agricultural	58,892 31		
Mining	18,076 87		
		77,969 18	
Clergy Lands		5,502 26	
Common School Lands		12,931 31	
Grammar School Lands		1,100 20	
University Lands		2,014 76	
Railway Lands		83 38	
Rent—			
Mining Leases	64,436 94		
Crown Leases	732 00		
		65,168 94	
			164,770 03
WOODS AND FORESTS.			
Timber dues		1,038,273 35	
Ground rent		61,039 41	
Bonus		227,667 84	
Transfer fees		4,371 50	
			1,331,352 10
Mining Licenses		2,742 00	
Casual fees	479 72		
Cullers' fees	256 00		
Assay fees	1,736 38		
		2,472 10	
Rondeau Park	24 50		
Algonquin Park	59 50		
		84 00	
			5,298 10
REFUNDS.			
Forest Reserve		10 50	
Inspection fees		37 50	
Agents' salaries		50 00	
			98 00
			1,501,518 23

D. GEO. ROSS,
Accountant.

AUBREY WHITE,
Assistant Commissioner.

DEPARTMENT OF CROWN LANDS,
TORONTO, 31st December, 1902.

(Appendix No. 5.)

STATEMENT of the Receipts of the Department of Crown Lands which are considered as Special Funds, for the year 1902.

Service.	$ c.	$ c.
Clergy Lands.		
Principal	3,363 80	
Interest	2,138 46	
		5,502 26
Common School Lands.		
Principal	4,585 83	
Interest	8,345 48	
		12,931 31
Grammar School Lands.		
Principal	544 70	
Interest	555 50	
		1,100 20
University Lands.		
Principal	1,927 17	
Interest	87 59	
		2,014 76
Railway Lands.		
Principal	55 67	
Interest	27 71	
		83 38
		$21,631 91

AUBREY WHITE,
Assistant Commissioner.

D. GEO. ROSS,
Accountant.

DEPARTMENT OF CROWN LANDS,
TORONTO, 31st December, 1902.

(Appendix No. 6.)

STATEMENT of the Disbursements of the Department of Crown Lands for the year 1902.

Name.	$ c.	$ c.	$ c.
AGENTS' SALARIES.			
Land.			
Annis, A. E	200 00		
Armstrong, J	500 00		
Best, S. G	500 00		
Brodie, D. M	151 10		
Buchanan, Thos	300 00		
Chapman, E. A	66 66		
Campbell, Wm	300 00		
Cockburn, J. D	500 00		
Eastland, T. G	300 00		
Ellis, Jas	500 00		
Hamilton, Alex	100 00		
Hamilton, Geo	83 33		
Handy, E	500 00		
Hartle, Wm	350 00		
Hollands, C. J	300 00		
Kirk, Wm	500 00		
Ryan, T. J	500 00		
Ruttan, J. F	250 00		
Scarlett, J. S	500 00		
Stephenson, Wm	300 00		
Stewart, C. R	500 00		
Stewart, James	300 00		
Tait, J. R	300 00		
Whelan, Jno	300 00		
Wood, Amos	100 00		
Young, H. N	300 00		
		8,501 09	
Timber.			
Campbell, P. C	1,600 00		
Garrow, E	1,400 00		
Halliday, F	1,600 00		
Margach, W	1,600 00		
Henderson, Chas	1,300 00		
McWilliams, J. B	2,500 00		
Munro, H	1,200 00		
Russell, Wm	266 00		
Kennedy, Jno	1,334 00		
		12,800 00	
AGENTS' DISBURSEMENTS.			
Land.			
Annis, A. E	26 73		
Armstrong, J	101 17		
Brodie, D. M	2 62		
Campbell, Wm	21 40		
Cockburn, J. D	5 14		
Eastland, T. G	14 21		
Ellis, James	12 82		
Carried forward		21,301 09	

(*Appendix No. 6.*)—*Continued.*

Name.	$ c.	$ c.	$ c.
Brought forward		21,301 09	
AGENTS' DISBURSEMENTS.—*Concluded.*			
Land.—Concluded.			
Handy, E	16 16		
Hartle, Wm	9 29		
Kirk, Wm	6 53		
Ryan, T. J	19 20		
Stephenson, Wm	36 56		
Stewart, C. R	12 80		
Stewart, Jas	5 00		
Whelan, Jno	11 48		
Wood, Amos	1 48		
Ruttan, J. F	12 00		
		314 59	
Timber.			
Campbell, P. C	505 35		
Garrow, E	157 58		
Halliday, F	197 76		
Henderson, Chas	67 26		
Margach, Wm	2,206 43		
Munroe, H	15 75		
McWilliams, J. B	752 65		
Russell, Wm	160 98		
		4,063 76	
Miscellaneous.			
Ames, D., guarding islands, Dog and Loboro lakes	20 00		
Arthur, R. H., fumigating lumber camp books	18 00		
Bilton, Geo., guarding islands in Mud lake	25 00		
Dannis, Samuel, guarding Leonard Islands	20 00		
Forbes, F. S., postage, acting agent Richard's Landing	90		
Miller, H. H., inspecting 3 in 11 Glenelg	8 00		
Regan, Jno., inspecting 35, 36 Baxter	19 70		
Russell, C. L., services Pembroke agency	393 35		
Spence, D. J., inspecting lands, Southampton	3 00		
Willmott, Jno. H., inspecting 32 in 14 Medora	10 50		
		518 45	
			26,197 89
CROWN TIMBER OFFICES.			
Ottawa.			
Darby, E. J., agent	1,250 00		
Larose, S. C., clerk	900 00		
		2,150 00	
Rent	499 99		
Disbursements	56 61		
		556 60	
			2,706 60
Carried forward			28,904 49

(*Appendix No. 6.*)—*Continued.*

Name.	$ c.	$ c.	$ c.
Brought forward			28,904 49
CROWN TIMBER OFFICES.—*Concluded.*			
Quebec.			
Nicholson, B., agent	1,400 00		
Harney, Thos, caretaker and Messenger	150 00		
		1,550 00	
Rent	125 00		
Disbursements	195 34		
Travelling expenses	200 00		
		520 34	
			2,070 34
WOODRANGING.			
Armstrong, John		291 15	
Bolt, James		71 19	
Brady, John		872 94	
Bremner, J. L		774 95	
Cross, A. E		301 50	
Carroll, W		602 00	
Crawford, A. C		867 03	
Christie, W. P		919 90	
Campbell, J. M		556 25	
Devine, M. J		442 00	
Elliott, G. E		764 00	
Henderson, Charles		385 22	
Halliday, James		818 20	
Johnson, S. M		1,999 65	
Jervis, Henry		807 65	
Kennedy, John C		697 14	
Lewis, C		181 05	
Lloyd, E. B		1,048 75	
Moore, D. H		1,779 10	
Maughan, J		1,399 03	
Malone, W. P		685 55	
Mooney, Thos		525 00	
McCracken, John		939 52	
McConachie, John		335 45	
McFarlane, John		50 00	
McCogherty, P		1,198 40	
McGillivray, A		546 45	
McGown, Wm		1,141 45	
McDonald D. F		638 10	
Pearson, J. J		569 00	
Quinn, Wm		1,125 00	
Robinson, Wm		1,649 39	
Regan, John		1,266 75	
Sinclair, Finlay		1,091 87	
Trivett, W. F		554 00	
Taylor, T. G		931 68	
White, J. B		1,559 05	
Wigg, Thos. G		1,072 09	
Young, Cyril T		505 00	
			31,962 48
Carried forward			62,937 31

(*Appendix No. 6.*)—*Continued.*

Name.	$ c.	$ c.	$ c.
Brought forward			62,937 31
FIRE RANGING.			
Arno, Joseph		83 00	
Aikens, G. M		50 00	
Archer, Geo		118 00	
Avery, James		127 00	
Armstrong, J. C		97 50	
Aylward, James		103 00	
Anderson, Thos		131 00	
Brannan, Sam'l.			
Disbursements	120 00		
1901	29 00		
		149 00	
Bellefeuille, Oliver		105 00	
Brown, R		131 00	
Bueler, Victor		85 00	
Burns, John		120 00	
Burns, Geo. F.		106 00	
Burns, Clifton H			
1901	131 00		
do 1902	78 00		
		209 00	
Bruchatz, Wm		73 00	
Bowland, J. J		131 00	
Bowland, Frank		110 00	
Bowland, William		140 00	
Burke, Hy		131 00	
Boucher, Wm			
Disbursements	131 00		
	55 50		
		186 50	
Beandry, Jno		262 00	
Beardmore & Co 1901		26 63	
Bovill, Robert 1901		64 00	
Bellow, Louis		131 00	
Breiden, Wesley		128 00	
Bromley, Thos		100 00	
Barrow, Edward		131 00	
Brady, Wm		27 00	
Brown, Hugh R. 1901		131 00	
Bethune, Wm 1901			
Disbursements	117 00		
	50 19		
		167 19	
Buchanan, Robt. F		64 00	
Brimacombe, Wm. M		118 00	
Burgess, Wm. H		114 00	
Caswell, Albert D		79 00	
Cooper, Angus		125 00	
Columbus, F. K		131 00	
Curtin David.		131 00	
Cattenach, Wm		131 00	
Cochrane, John 1901		131 00	
do 1902	249 00		
Disbursements	8 63		
		257 63	
Crombie, John		118 00	
Campbell, James		137 00	
Campbell, Henderson		131 00	
Campbell, G. E		131 00	
Campbell, Ira		131 00	
Carried forward		5,352 45	62,937 31

(*Appendix No 6.*)—*Continued.*

Name.	$ c.	$ c.	$ c.
Brought forward		5,352 45	62,937 31
FIRE RANGING.—*Continued.*			
Contway, James		131 00	
Cardiff, G. M.		131 00	
Cousins, James	131 00		
Disbursements	3 75		
		134 75	
Cunningham, Thos		131 00	
Cunningham, Joseph, disbursements		14 17	
Conway, R.		131 00	
Collins, Chas		106 00	
Coglan, Thos		136 00	
Cole, George		132 00	
Corrigan, M. B 1901	92 00		
do 1902	101 00		
		193 00	
Christie, W. P	300 00		
Disbursements	60 60		
		360 60	
Christie, Peter R		122 00	
Carroll, W. W		116 00	
Dunn, Thos. B	131 00		
Disbursements	3 00		
		134 00	
Didier, L. P		104 00	
Dufond, Ignace		119 00	
Doig, John 1901		131 00	
Dillabaugh, Thos		119 00	
Doolittle, Chas		104 00	
Dennison, Harry		136 00	
Driver, Joseph 1901	129 00		
do 1902	130 00		
		159 00	
Dawkins, Jno	98 00		
Disbursements	26 00		
		124 00	
Eberts, John		93 00	
Erwin, Thomas	136 00		
Disbursements	9 00		
		145 00	
Emlaw, Oliver		47 00	
Finnerty, Jno		82 00	
Fraser, W. A	118 00		
Disbursements	173 03		
		291 03	
Forbes, Chas		131 00	
Fraser, John		90 00	
Fitzhenry, Jno		131 00	
Finlayson, John	118 00		
Disbursements	75 00		
		193 00	
Fisher, Fred		131 00	
Flynn, Frank		131 00	
Francois, Jno		81 25	
Grozelle, A. D		123 00	
Green, F. K		8 00	
Grant, B. A		79 00	
Carried forward		10,077 25	62,937 31

(*Appendix No. 6.*)—*Continued.*

Name.	$ c.	$ c.	$ c.
Brought forward		10,077 25	62,937 31
FIRE RANGING.—*Continued.*			
Guthrie, Jno		131 00	
Gagnon, Jas		105 00	
Gagnon, Joseph		121 00	
Gagnon, Noel		97 50	
Gould, Ferdinand		152 00	
Garceau, A 1901	131 00		
do 1902	131 00		
		262 00	
Gardner, Jno 1901	62 00		
do 1902	256 00		
Disbursements	19 75		
		337 75	
Grawberger, Thos		131 00	
Gonu, James		119 00	
Grenkie, Chas		131 00	
Groulx, Peter		131 00	
Groulx, Arthur		59 25	
Georgian, Trefley		106 00	
Guertin, Oliver		131 00	
Humphrey, John		131 00	
Hose, Jacob, disbursements		19 75	
Henry, James C 1901	131 00		
do 1902	131 00		
Disbursements	12 50		
		274 50	
Hudson Bay Lumbering Co., disbursements		1 34	
Hillman, Alex		81 00	
Hurd, Cyrus		106 00	
Haughton, S. G		86 00	
Hunt, Wesley		112 00	
Henderson, Arthur		257 00	
Henderson, Ruben R		113 00	
Hayes, Martin		130 00	
Haley, Con		136 00	
Hoff, J. S. Morris	134 00		
Disbursements	49 88		
		283 88	
James Martin	96 00		
Disbursements	64 98		
		160 98	
Jones, Leonard		94 00	
Jackson, George		131 00	
Johnson, Wm	117 00		
Disbursements	27 60		
		144 60	
Johnson, James		130 00	
Jonason, Dan'l		118 00	
King, James		131 00	
Kerby, John		44 00	
Kelly, John		105 00	
Kearns, Patrick		131 00	
Kennedy, R		104 00	
Kennedy, M. J		9 00	
Kennedy. Wm		115 00	
Kennedy, W. B		118 00	
Carried forward		15,408 30	62,937 31

(Appendix No. 6.)—Continued.

Name.		$ c.	$ c.	$ c.
Brought forward			15,408 80	62,937 31
FIRE RANGING.—*Continued.*				
Kerr, E. G	1901	131 00		
do	1902	131 00		
			262 00	
Koch, Jno			125 00	
Long, H. E			117 00	
Lajoie, Joseph			131 00	
Labrash, J. P			129 00	
Lemyre, Meddy			95 00	
Labrie, Isadore			110 00	
Lemarche, Jno			130 00	
Laplante, J. K	1901		96 00	
Lariviere, Joseph	1901	131 00		
do	1902	35 00		
			166 00	
Lorenz, Chs			96 00	
Lavois, Benjamin			131 00	
Lawson, David	1901	131 00		
do	1902	131 00		
			262 00	
Logan, Hugh R			87 00	
Latour, A			131 00	
Lafrance, Joseph			11 00	
Linton, M. W			131 00	
Leblanc, Eustache			97 50	
Leblanc, Oliver		131 00		
do disbursements		7 00		
			138 00	
McColgan, E. R., disbursements	1901	1,182 20		
do	1902	121 00		
			1,303 20	
McFarlane, R. L			131 00	
McLaren, J. D			78 75	
McLaren, G. David			145 00	
McMartin, W. G			105 00	
McKay, Wm			105 00	
McInnis, Angus D		114 00		
Disbursements		177 25		
			291 25	
McAdam, James		149 00		
Disbursements		98 25		
			247 25	
McCreary, James			131 00	
McGuire, Patk			131 00	
McCauley, Jerry			40 00	
McDowell, Wm			88 00	
McMullen, Alex			120 00	
McDermott, J. L		1901	106 00	
McCaffrey, James			131 00	
McDonald, A. J			113 00	
McDonald, Jno. D	1901	147 50		
do	1902	310 00		
Disbursements		2 50		
			460 00	
Carried forward			21,580 75	62,937 31

(Appendix No. 6.)—Continued.

Name.		$ c.	$ c.	$ c.
Brought forward			21,580 75	62,937 31
FIRE RANGING.—*Continued.*				
McPhee, Hugh	1901		130 00	
McGhie, Chs	1901		127 00	
McColl, Arch			131 00	
McNab, Angus		131 00		
Disbursements		15 28		
			146 28	
McFadden, J. J., disbursements	1901		119 00	
McDermott, Wm. H			117 00	
McKinley, W. J			105 00	
McDermid, Alex			61 00	
McLeod, Angus			131 00	
McIntyre, Wm	1901	131 00		
do	1902	136 00		
			267 00	
McGuey, Dennis		136 00		
Disbursements		91 54		
			227 54	
McDowell, Alex			136 00	
McElroy, Robt			105 00	
McElroy, Dan'l, disbursements	1901	80 00		
Disbursements	1902	131 00		
			211 00	
McGarvey, Robt			117 00	
McDougall, Duncan	1901		14 00	
Malley, Mark		131 00		
Disbursements		77 82		
			208 82	
Merkley, Ambrose			105 00	
Munro, J. H		131 00		
Disbursements		10 50		
			141 50	
Mackie, Thos., disbursements			116 50	
Montroy, Joseph	1901	119 00		
do	1902	131 00		
			250 00	
Marks, Thos			122 00	
Malley, John			56 00	
Marshall, Wm			105 00	
Martin, M			84 00	
Martin, John	1901		71 00	
Milne, Albert		167 50		
Disbursements		20 55		
			188 05	
Mongeau, Napoleon	1901		131 00	
May, Henry			130 00	
Millichamp, Thos. A			123 00	
Morrisey, Jas	1901		120 00	
May, Albert			131 00	
Moore, Geo. J			131 00	
Mulvahill, M			114 00	
Mercer, F. T	1901		104 00	
Neil, Wm. C		100 00		
Disbursements		1 50		
			101 50	
Carried forward			26,258 94	62,937 31

(Appendix No. 6.)—Continued.

Name.		$ c.	$ c.	$ c.
Brought forward			26,258 94	62,937 31
FIRE RANGING.—*Continued.*				
O'Connor, John		131 00		
Disbursements		20 18		
			151 18	
Ouissant, Toussanet			112 00	
Owen, Richard			114 00	
Oram, John			136 00	
O'Neil, A. J			376 40	
O'Neil, R. F		25 00		
Disbursements		11 75		
			36 75	
Price, John			80 00	
Paul, Wes			131 00	
Pilon, Xavier			116 00	
Potvin, Jules			131 00	
Page, George	1901	131 00		
do	1902	131 00		
			262 00	
Payil, Nelson			91 00	
Parent, Wm	1901	131 00		
do	1902	131 00		
			262 00	
Piper, Geo			131 00	
Piper, Richd	1901	131 00		
do	1902	131 00		
			262 00	
Rawson, Chs. E			58 00	
Robillard, Andrew			85 00	
Ranger, Albert			118 00	
Rath, Wm			131 00	
Ritchie, Geo			68 00	
Ritchie, D. A			51 00	
Raymond, Chs			109 00	
Reynolds, Jno		104 00		
Disbursements		159 10		
			263 10	
Regan, Maurice			90 00	
Reilly, Geo., disbursements			27 98	
Randall, Louis G			131 00	
Spreadborough, George			125 00	
Sheridan, Peter			129 00	
Scantlin, James			127 00	
Scott, Fred W			127 00	
Skuce, Thos		136 00		
Disbursements		69 95		
			205 95	
Smith, Patk			131 00	
Smith, Leslie			122 00	
Smith Joseph		130 00		
Disbursements		7 50		
			137 50	
Seeley, L. F			88 00	
Saucier, D			101 00	
Scofield, James			131 00	
Carried forward			31,207 80	62,937 31

(*Appendix No. 6.*)—*Continued.*

Name.	$ c.	$ c.	$ c.
Brought forward		31,207 80	62,937 31
FIRE RANGING.—*Concluded.*			
Turcott, Andrew		111 00	
Trudeau, Adelard		54 00	
Tyson, Jno 1901		30 75	
Tait, W. A		93 00	
Towers, O. R 1901		43 00	
Telgman, Otto E	150 00		
Disbursements	403 48		
		553 48	
Took, F. K 1901	131 00		
do 1902	126 00		
		257 00	
Thompson, F. A. H		131 00	
Thompson, R. D		131 00	
Turner, Geo		114 00	
Trudeau, Paul		113 00	
Thiviere, Xavier		105 00	
Vandoski, Jno., disbursements		60 00	
Volker, P. D		131 00	
Vaudette, Eustach		79 38	
Winters, Allan E		119 00	
Winters, Jno		72 00	
Weart, E. B		131 00	
Wallace, George		117 00	
Walters, Thos		119 00	
Wilson, John D	129 00		
Disbursements	12 00		
		141 00	
Wilson, Hugh A., disbursements 1901		7 00	
Wilson, Christie		90 00	
White, A. and P., disbursements 1901		36 15	
White Jno. F. G		66 25	
Young, Wm		125 00	
Yuill, Jno. B	62 00		
Disbursements	2 50		
		64 50	
		34,302 31	
Refunds		205 00	
			34,097 31
MINING DEVELOPMENT.			
Rat Portage Agency.			
Charlesworth, L C., salary	910 00		
Austin, P. H., clerk	40 00		
		950 00	
Office rent	360 00		
Disbursements	44 15		
		404 15	
			1,354 15
Carried forward			98,388 77

(Appendix No. 6.)—Continued.

Name.	$ c.	$ c.	$ c.
Brought forward ...	...	...	98,388 77
MINING DEVELOPMENT.—*Continued.*			
Belleville Assay Office.			
Wells, W. J., salary as agent, 9 months	750 00		
Burrows, A. G., salary 3rd October to 31st December	244 62		
		994 62	
Burrows, A. G., services as clerk	15 50		
Bolton, L. L do	42 50		
Dickson, C. W do	15 00		
Hambly, Geo do	77 50		
McGinnis, Wm do	33 00		
Reid, T. C do	88 00		
Thorpe, F. J do	318 41		
Disbursements	824 49		
Supplies	1,062 24		
Repairs and maintenance	641 40		
		2,546 13	
			4,130 66
Michipicoton Mining Division.			
Boyd, D. G., salary	1,000 00		
do rent	60 00		
Disbursements	148 13		
		1,208 13	
Inspection of Mines			
Miller, W. G., salary 8 months	2,400 00		
Disbursements	738 10		
		3,138 10	
Carter, W. E., disbursements	...	471 35	
Explorations.			
Bolton, L. L., services	140 00		
Disbursements	127 45		
		267 45	
Barron, E. B., disbursements	...	125 93	
Coleman, A. P., salary	500 00		
Disbursements	740 48		
		1,240 48	
Culbert, M. T., services	182 00		
Disbursements	117 89		
		299 89	
Empey, John, services	...	54 00	
Graton, L. C do	174 00		
Disbursements	37 65		
		211 65	
Harcourt, F. Y., services	78 00		
Disbursements	17 90		
		95 90	
Carried forward ...	...	7,112 88	102,519 43

(Appendix No. 6).—Continued.

Name.	$ c.	$ c.	$ c.
Brought forward		7,112 88	102,579 43
MINING DEVELOPMENT.—*Concluded.*			
Explorations.—Concluded.			
Miller, W. G., services 1901		500 00	
Parke, W. A., disbursements		84 23	
Leckie, Jno., tent	6 00		
Foster, Jas., compasses	17 50		
Warwick Bros., printing	25 31		
		48 81	
			7,745 92
CULLERS ACT.			
Garrow, E., disbursements		1 50	
Mather, D. L., services		4 00	
Munro, H., disbursements		11 10	
Murdoch, J., services	4 00		
Disbursements	4 00		
		8 00	
McWilliams, J. B., disbursements		10 60	
Turnbull, W., services	8 00		
Disbursements	2 00		
		10 00	
Advertising		39 04	
			84 24
FOREST RESERVES.			
Temagami Reserve.			
Dent, E., services	324 00		
Disbursements	111 50		
		435 50	
Evans, H W., services	267 50		
Disbursements	15 85		
		283 35	
Friday, Jas., services		283 84	
Katt, A do		220 00	
Langhrin, L do	474 00		
Disbursements	47 25		
		521 25	
McGregor, P., services	422 50		
Disbursements	12 10		
		434 60	
McLean, Jno., services		278 00	
O'Leary, G do	267 50		
Disbursements	19 95		
		287 45	
Paul, Alex., services		234 00	
Petrant, W do		276 00	
Petrant, J do		118 00	
Carried forward		3,371 99	110,349 59

(Appendix No. 6.)—Continued.

Name.	$ c.	$ c.	$ c.
Brought forward		3,371 99	110,349 59
FOREST RESERVES.—*Concluded.*			
Temagami Reserve.—Concluded.			
Southworth, H. S., services	324 00		
Southworth, H. S., disbursements	117 94		
		441 94	
Turner, John, services	303 00		
Disbursements	69 50		
		372 50	
Turner, Jos., services		292 00	
White Bear, F. do		280 86	
Young, P. do	324 00		
Disbursembents	104 55		
		428 55	
Supplies		239 40	
Sibley Reserve.		5,427 24	
Munro. H., salary		100 00	
Eastern Reserve.			
Wensley, F. H., services	212 00		
Wood, A. W., do	250 00		
		462 00	
			5,989 24
SURVEYS			32,887 97
BOARD OF SURVEYORS			200 00
REFUNDS			21,090 19
CONTINGENCIES.			
Bureau of Mines.			
Printing and binding	478 30		
Stationery	583 42		
		1,061 72	
Postage	139 48		
Telegraphing	62 09		
Express and freight	115 79		
		317 36	
Advertising	482 85		
Subscriptions	111 65		
Books	76 14		
		670 64	
Gibson, T. W., travelling expenses	53 15		
Carter, W. E., do	6 60		
		59 75	
Ridley, E. N., services	42 00		
Thompson, P., do	93 00		
Willmott, A. B., do	10 00		
		145 00	
Carried forward		2,254 47	170,516 99

(Appendix No. 6.)—Continued.

Name.	$ c.	$ c.	$ c.
Brought forward	....	2,254 47	170,516 99
CONTINGENCIES.—*Continued.*			
Bureau of Mines.—Concluded			
Photographing	53 69		
Maps	361 90		
		415 59	
Sundries	.....	17 31	
			2,687 37
Forestry.			
Printing and binding	36 00		
Stationery	164 21		
		200 21	
Postage	195 41		
Express	6 60		
Telegraphing	80 45		
		282 46	
Subscriptions	79 15		
Books	49 68		
Photo supplies	36 80		
		165 63	
Perse, R. M., travelling expenses	35 50		
Southworth, Thos., do	250 00		
		285 50	
Cadieux, J., services	314 00		
Rolling, W., do	48 00		
Smith, A. M., do	49 00		
Thompson, P., do	276 00		
		687 00	
Car tickets	53 00		
Sundries	39 67		
		92 67	
			1,713 47
Departmental.			
Printing and binding	2,085 74		
Stationery	2,906 30		
		4,992 04	
Postage	1,187 67		
Express	167 00		
		1,354 67	
Telegraphing	313 48		
Telephoning	127 00		
Cab hire	103 75		
Car fare	50 00		
		594 23	
Advertising	26 00		
Subscriptions	331 27		
		357 27	
Extra clerks	.....	5,719 33	
Maps	213 05		
Books	57 00		
Photos	37 50		
		307 55	
Typewriters, rent and repair	.....	233 30	
			.....
Carried forward	.....	13,558 39	174,917 83

(Appendix No. 6.)—Concluded.

Name.	$ c.	$ c.	$ c.
Brought forward		13,588 39	174,917 83
CONTINGENCIES.—*Concluded.*			
Departmental.—Concluded.			
Kempthorne, compensation for timber cut in Machar	50 00		
Wynne, C., compensation for improvements on lots in Burleigh	55 00		
Robinson, T., cost of survey of Islands in Balsam Lake	25 75		
		130 75	
Ryan, Peter, auctioneer's fees sale 1901	750 00		
Yates, G. W., extra services	75 00		
		825 00	
Davis, Hon. E. J., travelling expenses	79 50		
Jones, C. S., do	72 60		
Kennedy, J.. do	13 00		
White, Aubrey, do	11 75		
		176 85	
Sundries		65 27	
Military Grants.			
Printing and binding	344 15		
Stationery	432 55		
Postage	467 44		
Extra clerks	1,510 00		
Dixon, Major F. E., expenses *re* Q.O.R. grants	30 00		
Sundries	11 35		
		2,795 49	
			17,551 75
			$192,469 58

AUBREY WHITE.
Assistant Commissioner.

D. GEO. ROSS,
Accountant.

DEPARTMENT OF CROWN LANDS,
Toronto, 31st December, 1902.

(Appendix No. 7.)

STATEMENT of Expenditure on account of various Services, under the Direction of the Department of Crown Lands, for the year 1902.

Name.	$ c.	$ c.	$ c.
COLONIZATION.			
Exhibitions.			
Armstrong, T. E., Disbursements	37 30		
Armstrong, W. G., do	33 95		
Burriss, R. A., do	171 13		
Robertson, Jas., Services 30 00			
Disbursements 62 90			
	92 90		
Collecting grasses, grain, etc	186 20		
Labor	168 77		
Supplies	37 66		
Cartage and freight	51 20		
		779 11	
Carriage of immigrants	531 44		
Meals for do	142 45		
Guides, fees	1,293 06		
		1,966 95	
Immigration shed at New Liskeard		105 60	
Meyer, C. C., travelling expenses		30 00	
Maps	1,322 10		
Photographs	31 50		
		1,353 60	
Advertising	2,259 17		
Printing and stationery	896 50		
Express and freight	119 75		
Telegraphing	34 17		
		3,309 59	
Sundries		37 24	
			7,582 09
DIAMOND DRILL.			
Roach, E. K., Salary	832 20		
do Disbursements	123 69		
		955 89	
Roach, W. W., Salary	475 84		
do Disbursements	165 45		
		641 29	
Smith, O. R., Salary	693 99		
do Disbursements	42 75		
		736 74	
Eastwood, T. R., Travelling expenses	17 50		
Ellis, A. E., do	11 40		
Fry, A. W., do	7 95		
Muns, W., do	3 00		
Walsh, J. J.,. do	29 60		
		69 45	
Adverti ing		170 38	
Carbons	3,104 80		
Drill furnishing	1,197 59		
		4,302 39	
Freight, express and teaming	1,023 05		
Labor	3,010 29		
Carried forward		6,876 14	7,582 09

(Appendix No 7.)

STATEMENT of Expenditure on account of various Services, under the Direction of the Department of Crown Lands, for the year 1902.

Name.	$ c.	$ c.	$ c.
Brought forward		6,876 14	7,582 09
DIAMOND DRILL.—*Con.*			
Supplies	702 03		
		4,735 37	
		11,611 51	
Refunds		6,160 06	
			5,451 45
MINING SCHOOLS		47,071 80	
COLLECTION OF MINERALS		120 00	
			47,191 80
IRON MINING ACT			25,000 00
ALGONQUIN PARK			7,572 27
RONDEAU PARK			4,796 45
IMMIGRATION.			
Liverpool Agency			4,777 25
EXPLORATIONS OF 1901.			
Demorest and Sylvester—Party No. 3, balance			210 00
			102,581 31

AUBREY WHITE,
Assistant Commissioner.

D. GEO. ROSS,
Accountant.

DEPARTMENT OF CROWN LANDS,
TORONTO, 31st December, 1902.

(*Appendix*

WOODS AND

Statement of Timber and Amounts accrued from Timber Dues, Ground

Agencies.	Area covered by timber license.	QUALITY AND					
		Sawlogs.				Boom and	
		Pine.		Other.		Pine.	
	Sq. miles.	Pieces.	Feet, B. M.	Pieces.	Feet, B.M.	Pieces.	Feet, B.M.
Western Timber District	10,476	7,739,413	499,816,615	386,487	18,427,644	148,631	27,991,424
Belleville Timber District	975	395,185	35,517,860	323,353	11,825,385	14,866	3,843,450
Ottawa Timber District.....	5,957	950,288	80,496,958	195,763	8,401,312	60,012	6,704,982
	17,408	9,084,886	615,831,433	905,603	38,654,341	223,509	38,539,856

GENERAL STATEMENT OF

Agencies.	Cordwood.		Tan Bark.	Railway Ties.	Posts.	Telegraph poles.	Shingle bolts.	Head blocks.
	Hard.	Soft.						
	Cords.	Cords.	Cords.	Pieces.	Cords.	Pieces.	Cords.	Pieces.
Western Timber District	18,752	29,306	9,640	2,443,259	169	10,528	488	343
Belleville Timber District	243	1,412	1,083	5,239	3,069	.....	28	.....
Ottawa Timber District.....	.....	844	.....	126,757	2,156	296	5	.....
	18,995	31,562	10,723	2,575,255	5,394	10,824	521	343

J. A. G. CROZIER,
Chief Clerk in Charge.

DEPARTMENT OF CROWN LANDS,
TORONTO, 31st December, 1902.

No. 8.)

FORESTS.

Rent, and Bonus during the year ending 31st December, 1902.

DESCRIPTION OF TIMBER.

Dimension Timber.		Square Timber.						Cedar.
Other.		White Pine.		Ash.		Pile Timber.		
Pieces.	Feet, B. M.	Pieces.	Cubic feet.	Pieces.	Cubic feet	Pieces.	Feet.	Lineal ft.
18,533	2,537,199	21,459	1,067,141	1	49	12,141	1,022,483	113,507
4,781	756,682	.....	....	..... .	.....	.....	....	6,879
25,297	1,700,453	7,580	401,615	5	120	.....	.. ..	242,105
48,631	4,994,334	29,039	1,468,756	6	169	12,141	1,022,483	362,491

TIMBER, ETC.—*Continued.*

Pulpwood.	Heading bolts.	Amounts accrued.						
Cords.	Cords.	Transfer bonus.	Interest.	Trespass.	Timber dues.	Bonus.	Groud rent.	Total.
		$ c.	$ c.	$ c.	$ c.	$ c.	$ c,	$ c.
29,505	24	3,008 50	20,755 40	9,087 88	699,269 11	247,815 26	37,230 25	1,017,166 40
150	.....	20 00	606 49	223 81	48,713 98	....	4,706 00	54,270 28
48	.....	1,343 00	1,722 26	3 18	106,505 90	.....	18,577 00	128,151 34
29,703	24	4,371 50	23,084 15	9,314 87	854,488 99	247,815 26	60,513 25	1,199,588 02

AUBREY WHITE,
Assistant Commissioner

(*Appendix No. 9.*)

WOODS AND FORESTS BRANCH.

Statement of Revenue collected during the year ending 31st December, 1902.

	$ c.	$ c.
Amount of Western District Collections at Department	1,033,703 44	
Collections at Quebec	30,422 79	
		1,064,126 23
Amount of Belleville Collections	88,811 95	
		88,811 95
Amount of Ottawa Collections	170,376 04	
Collections at Quebec	8,037 88	
		178,413 92
		1,331,352 10

J. A. G. CROZIER,
Chief Clerk in Charge.

AUBREY WHITE,
Assistant Commissioner.

DEPARTMENT OF CROWN LANDS,
TORONTO, 31st December, 1902.

(*Appendix No. 10.*)

PATENTS BRANCH.

Statement of Patents, etc., issued during the year 1902.

	Number.
Crown Lands	482
School do	52
Mining do	54
Public do (late Clergy Reserves)	30
Free Grant Lands (A. A.)	103
do do (under Act of 1880)	342
Rainy River Lands (Mining and Crown)	63
Mining Leases	228
Licenses of Occupation	9
Crown Leases	3
Mining Lands (University)	10
Mining Leases do	2
Crown Lands do	3
Pine	4
Total	1,385

CHARLES S. JONES,
Chief Clerk.

AUBREY WHITE,
Assistant Commissioner.

DEPARTMENT OF CROWN LANDS,
TORONTO, 31st December, 1902.

(*Appendix No. 11.*)

Return of the number of locatees and of acres located ; of purchasers and of acres sold ; of lots resumed for non-performance of the settlement duties ; and of patents issued under The Free Grants and Homesteads Act, during the year 1902.

Township.	District or County.	Agent.	No. of persons located.	No. of acres located.	No. of purchasers.	No. of acres sold.	No. of lots resumed.	No. of patents issued.
Baxter	Muskoka	Wm. Kirk, Bracebridge	7	1,078	3	150	2	5
Brunel	"	" "	2	300			1	2
Chaffey	"	" "	3	300			2	3
Draper	"	" "	2	208			2	3
Franklin	"	" "	6	651	3	152	7	4
Macaulay	"	" "	5	616	1	4	5	2
Medora	"	" "	5	758	2	240	5	11
Monck	"	" "	1	110	2	161		2
Morrison	"	" "	4	544			4	
Muskoka	"	" "	4	573			8	3
McLean	"	" "	8	1,189	1	2	8	1
Oakley	"	" "	6	850			10	
Ridout	"	" "						
Ryde	"	" "	2	400	1	1	2	6
Sinclair	"	" "	4	828	2	42	16	5
Sherbourne	"	" "	1	97				
Stephenson	"	" "						4
Stisted	"	" "	11	1,413			11	2
Watt	"	" "	4	534			6	4
Wood	"	" "	14	1,930	1	6	11	1
Cardwell	Parry Sound	James Ellis, Parry Harbor	15	2,274	3	282	22	6
Carling	"	" "	6	959			8	2
Christie	"	" "	3	484			6	
Conger	"	" "	4	645	2	116		3
Ferguson	"	" "	2	397			4	2
Foley	"	" "	3	344			4	
Hagerman	"	" "	1	223	1	23		
Humphrey	"	" "	2	171				1
Monteith	"	" "	2	301			2	1
McConkey	"	" "	3	484				
McDougall	"	" "	5	607			5	1
McKenzie	"	" "	1	209	2	28		1
McKellar	"	" "						
Shawanaga	"	" "						
Wilson	"	" "						1
Chapman	"	S. G. Best, Magnetawan	14	2,014	1	1	10	3
Croft	"	" "	13	2,167	2	169	16	3
Ferrie	"	" "						1
Gurd	"	" "	12	2,058	3	21	2	9
Lount	"	" "	5	632	3	185		3
Machar	"	" "	19	3,007	2	112	20	9
Mills	"	" "	4	495	1	50	4	3
Pringle	"	" "	3	592				2
Ryerson	"	" "	14	2,112	2	106	11	5
Spence	"	" "	9	1,312	3	262	11	2
Strong	"	" "	6	800			4	7
Armour	"	E. Handy, Emsdale	2	195				2
Bethune	"	" "	8	1,254	3	130	11	6
Joly	"	" "	7	1,077			8	4
McMurrich	"	" "	11	1,206			9	2
Perry	"	" "	3	284	1	30	1	6
Proudfoot	"	" "						

(*Appendix No. 11.*)—*Continued.*

Township.	District or County.	Agent.	No. of persons located.	No. of acres located.	No. of purchasers.	No. of acres sold.	No. of lots resumed.	No. of patents issued.
Chisholm	Parry Sound	J. S. Scarlett, Powassan	26	3,800	2	29	7	7
Hardy	"	" "	1	200				
Himsworth	"	" "	16	2,686	2	11	13	15
Laurier	"	" "	7	800	1	28	6	2
Nipissing	"	" "	12	1,946	2	6	10	2
Patterson	"	" "	3	500	1	196		
Anson	Haliburton	Wm. Hartle, Minden	1	100			1	
Glamorgan	"	" "	4	425			3	4
Hindon	"	" "	3	419			2	
Lutterworth	"	" "	4	567			1	1
Minden	"	" "	12	1,212			6	2
Snowdon	"	" "	5	699			4	1
Stanhope	"	" "	5	458			4	2
Anstruther	Peterboro'	T. G. Eastland, Apsley	3	438	2	140		
Burleigh	"	" "	3	402	1	2		2
Chandos	"	" "	2	200			1	1
Methuen	"	" "	2	150				4
Cardiff	Haliburton	C. R. Stewart, Haliburton	3	291			3	1
Cavendish	Peterboro'	" "	7	1,111	3	30	1	5
Galway	"	" "	5	476	1	11	2	3
Monmouth	Haliburton	" "	10	1,171			9	4
Bangor	Hastings	" "	2	234			2	
McClure	"	" "	9	1,132			4	
Wicklow	"	" "						
Carlow	"	J. R. Tait, L'Amable	18	2,405	3	148	9	4
Cashel	"	" "	1	100	1	23		1
Dungannon	"	" "	5	743	2	45	4	9
Faraday	"	" "	10	1,262	2	5	8	11
Herschel	"	" "	6	666	1	184	6	5
Limerick	"	" "	3	369	2	62	4	4
Mayo	"	" "	5	701			3	4
Monteagle	"	" "	11	1,109	4	107	3	11
Wollaston	"	" "	1	187			3	
Abinger	Addington	A. W. Wood, Plevna						4
Denbigh	"	" "	3	303	1	1	1	1
Canonto, S	Frontenac	" "	1	200				
Canonto, N	"	" "						
Clarendon	"	" "	2	112			1	2
Miller	"	" "	2	267				
Palmerston	"	" "	1	100			2	4
Algona, S	Renfrew		1	50			1	4
Algona, N	"		1	45	1	106		
Brougham	"		9	1,215	2	89	4	4
Grattan	"		4	495	1	2	1	6
Hagarty	"		5	551			1	2
Richards	"		2	287	1	100		
Wilberforce	"							1
Brudenell	"	John Whelan, Brudenell	15	1,693	1	12	7	7
Griffith	"	" "	1	50				
Jones	"	" "	11	1,302	3	84	2	5
Lyell	"	" "	17	2,572	2	20		3
Lyndoch	"	" "	7	730	1	55	1	5
Matawatchan	"	" "	2	196				2
Radcliffe	"	" "	14	2,033	4	54	1	7

(*Appendix No. 11.*)—*Continued.*

Township.	District or County.	Agent.	No. of persons located.	No. of acres located.	No. of purchasers.	No. of acres sold.	No. of lots resumed.	No. of patents issued.
Raglan	Renfrew	John Whelan, Brudenell	24	2,814	6	337	1	9
Sebastopol	"	" "	8	986			2	4
Sherwood	"	" "	18	1,985	5	126	3	12
Alice	"	James Stewart, Pembroke	4	334	1	9	3	5
Buchanan	"	" "	1	142	1	66	1	3
Cameron	"	" "						
Fraser	"	" "	2	313	1	9		3
Head	"	" "						
Maria	"	" "						
McKay	"	" "						
Petawawa	"	" "	4	400			3	6
Rolph	"	" "						
Wylie	"	" "						
Bonfield	Nipissing		10	1,139			5	8
Calvin	"		4	471	1	75	1	6
Ferris	"		11	1,362			9	9
Mattawan	"		2	198			1	1
Papineau	"		4	400			2	4
Korah	Algoma	H. N. Young, S't Ste. Marie	6	600			2	12
Parke	"	" "	3	400	1	1	1	5
Prince	"	" "	21	3,370	1	160	9	10
Plummer	"	Thos. Buchanan, Thessalon			1	14		5
St. Joseph Is'd			11	1,199	6	258	18	3
Blake	Thunder Bay	J. F. Ruttan, Port Arthur	12	1,921			5	
Conmee	"	" "	6	964	2	3	3	1
Crooks	"	" "						
Dawson Road	"	" "						
Dorion	"	" "	13	2,054			4	
Gillies	"	" "	19	3,032	1	2	12	1
Gorham	"	" "	2	359	1	54		
Lybster	"	" "	20	3,057	1	166	10	
Marks	"	" "	13	1,979	3	12	5	
McIntyre	"	" "	36	5,175	2	3	1	
MacGregor	"	" "	4	654	1	7		
O'Connor	"	" "	37	5,879	4	328	24	
Oliver	"	" "	7	982			7	3
Paipoonge	"	" "	18	1,996	1	3	11	8
Scoble	"	" "	2	301			1	
Strange	"	" "	11	1,737			5	
Atwood	Rainy River	Wm. Campbell, Stratton	1	82			1	3
Blue	"	" "	23	3,559			14	
Curran	"	" "	15	2,348			5	
Dilke	"	" "	7	877	2	32	5	5
Morley	"	" "	10	1,450	8	178	5	13
Nelles	"	" "	13	1,786	1	80	6	
Pattullo	"	" "	18	2,758	3	164	16	2
Roseberry	"	" "	1	77			2	
Shenston	"	" "	12	1,699	7	102	10	5
Spohn	"	" "	2	362				
Tait	"	" "	39	6,125	2	162	14	
Worthington	"	" "	5	728	1	80	5	1
McCrosson	"	" "	9	1,445	1	80		

(*Appendix No. 11.*)—*Concluded.*

Township.	District or County.	Agent.	No. of persons located.	No. of acres located.	No. of purchasers.	No. of acres sold.	No. of lots resumed.	No. of patents issued.
Aylesworth	Rainy River	Wm. Stephenson, Emo	5	846	2	44	2	....
Barwick	"	"	1	76	....	.....	1	....
Burriss	"	"	53	8,864	9	401	10	4
Carpenter	"	"	34	5,700	8	353	12	7
Crozier	"	"	19	2,855	9	258	14	6
Devlin	"	"	12	1,742	14	350	7	11
Dobie	"	"	34	5,382	9	475	11	6
Kingsford	"	"	18	3,077	1	2	....	....
Lash	"	"	16	2,411	11	347	7	3
Mather	"	"	57	9,446	7	396	...	....
Miscampbell	"	"	33	5,125	....	.....	3	....
Roddick	"	"	.....	.....	2	184	....	3
Woodyatt	"	"	2	205	3	117	2	4
			1,342	193,070	232	9,261	700	496

NOTE.—By inadvertance a mistake was made in this Appendix to the Report of 1901, the number of lots located being given instead of the number of persons. The correct figures for 1901 are : No. of persons located, 1,030.

AUBREY WHITE,
Assistant Commissioner.

E. S. WILLIAMSON,
Clerk in Charge.

DEPARTMENT OF CROWN LANDS,
TORONTO, 31st December, 1902.

(Appendix No. 12.)

Statement of work done in the Military Lands Branch of the Department of Crown Lands during the year.

Letters received	11,400
do written	5,800
Certificates issued	6,600
Documents issued in connection with certificates	26,400
Pamphlets do	5,000
Maps do	20,000
Forms do	4,000

R. H. BROWNE,
Clerk in charge.

AUBREY WHITE,
Asst. Commissioner.

(Appendix No. 13.)

Statement of the number of Letters received and mailed by the Department in 1900, 1901 and 1902.

Year.	Letters received.							Names indexed.	Orders-in-Council.	Returned Letters.	Letters, circulars and reports mailed from Department.
	Sales and Free Grants.	Surveys.	Woods and Forests.	Mines.	Colonization and Forestry.	Military Land Grants.	Totals.				
1900	12,504	7,665	5,800	3,414	1,961	.....	31,344	44,216	87	51	41,650
1901	15,184	7,340	5,783	4,402	3,174	20,000	55,883	47,312	123	73	43,200
1902	15,055	6,480	5,339	3,828	6,299	11,400	48,401	45,207	98	62	48,500

FRANK YEIGH,
Registrar.

AUBREY WHITE,
Assistant Commissioner.

DEPARTMENT OF CROWN LANDS,
TORONTO, 31st December, 1902.

(*Appendix No. 14.*)

Statement of Municipal Surveys for which instructions were issued during the year 1902.

No.	Name.	No.	Date of Instructions.	Description of Survey.	Date when confirmed under Rev. Stat. of Ontario, 1897, Cap. 181, sec. 14, sub-sec. 4.
	John Roger	633	February 7th.	To re-survey portion of the eastern boundary line of the Township of Hibbert and to replace in the same position in which it formerly stood, the stone monument on the blind line between the ninth and tenth concessions of the Township of Hibbert at lots numbers one in the said concessions on the said town line.	
2	J. B. Lewis.....	634	February 15th	To survey the boundary line between the Townships of Cumberland and Clarence from the north end of the commons in the second concession (old survey) of the Township of Cumberland south along the said boundary to about lot number eight or as near thereto as an original monument may be found, and to plant permanent stone or iron monuments at the easterly and westerly limits of said road allowance between said townships at the angles of the road allowances intersecting the said boundary road allowance from the adjacent Township of Clarenee.	
3	Andrew Bell....	635	February 25th	To survey that portion of the boundary line between the Townships of Beckwith and Drummond in the County of Lanark, from the fourth concession line to the eighth concession line, just north of Mississippi Lake, and to plant stone or monuments of other durable material at the intersection of the concession lines or road allowances in the fourth, fifth, sixth and seventh concessions in each township with the road allowance between the Townships of Beckwith and Drummond.	
4	Peter S. Gibson.	636	March 12th ..	To survey the original road allowance between the first and second concessions in that part of West Gwillimbury now in the Township of King, from the Holland River easterly to the western boundary of the third concession west of Yonge street, and to plant stone or other durable	

(*Appendix No. 14.*)—*Continued.*

Statement of Municipal Surveys for which instructions were issued during the year 1902.

No.	Name.	No.	Date of Instruction.	Description of Survey.	Date when confirmed under R.S.O. 1897, cap. 181, sec. 14, sub-sec. 1.
4	Peter S. Gibson.	636	March 12th ..	monuments at the angles of the lots in the first concession abutting on said road allowance.	
	E. T. Wilkie ...	637	May 10th	To survey the line between the fourth and fifth concessions of the Township of Hinchinbrooke from lot number fourteen northerly to lot number twenty-three and to plant permanent stone or other durable monuments at the angles of the lots on each side of the concession road allowance.	October 6, 1902
	Harold H. Gibson	638	July 7th.....	To survey and establish Queen street, Ann street, Hurontario street, Helen street, Brook street, Park street, High street, Port street, Toronto street and Elizabeth street, said streets being east of the river Credit, in the village of Port Credit, in the township of Toronto, in the County of Peel, by planting stone or other durable monuments at the intersections of the said streets, at the respective corners of the lots abutting thereon, and also for the survey of the road allowance between Dundas street and the first concession south of Dundas street on the Indian Reserve in the said Township of Toronto, from the westerly limit of lot number twelve to the easterly limit of lot number fifteen in said Township of Toronto, and to mark same by permanent stone or other durable monuments.	
7	Peter S. Gibson.	639	Aug. 20th....	To survey the side road allowance between lots numbers five and six in the fifth concession of the township of East Gwillimbury, and to mark the same by permanent stone or iron monuments on either side thereof at the front and at the rear of said concession, being the northwest and northeast angles of lot number five and the southwest and southeast angles of lot number six.	
8	Peter S. Gibson.	640	October 28th..	To survey the allowance for road between lots numbers thirty and thirty-one in the seventh concession of the Township of East Gwillimbury and to plant stone or	

(Appendix No. 14.)—Concluded.

Statement of Municipal Surveys for which instructions were issued during the year 1902.

No.	Name.	No.	Date of Instruction.	Description of Survey.	Date when confirmed under R. S. O. 1897, cap. 181, sec. 14, sub-sec. 4.
8	Peter S. Gibson.	640	October 28th..	other durable monuments on either side thereof and at the front and rear angles of the lots abutting on the said road allowance.	
9	James L. Morris	641	October 28th..	To survey the allowance for road between the eighth and ninth concessions of the township of Ross from lot number one to lot number five inclusive, and to mark the same by permanent stone or other durable monuments on either side thereof.	
10	James L. Morris	642	December 9th.	To survey the concession road allowance between the ninth and tenth concession of the township of Fitzroy in the County of Carleton, from side road allowance between lots numbers five and six to side road allowance between lots ten and eleven, and to plant stone or other durable monuments at the angles of the lots on either side of said concession road allowance between the said side roads.	

GEORGE B. KIRKPATRICK,
Director of Surveys.

AUBREY WHITE,
Assistant Commissioner

DEPARTMENT OF CROWN LANDS,
TORONTO, December 31st, 1902.

(Appendix No. 15.)

Statement of Municipal Surveys confirmed during the year 1902.

No.	Name of Surveyor.	No.	Date of Instructions.	Description of Survey.	Date when confirmed under Rev. Stat. of Ontario, 1897, cap. 181, sec. 14, sub-sec. 4.
1	E. T. Wilkie	625	April 4, 1900....	To survey that part of the concession line between the eighth and ninth concessions of South Sherbrooke and to define the concession road allowance by permanent stone or iron monuments on each side thereof from lots number ten westerly to the	April 9, 1902.

(Appendix No. 15).—Concluded.

No.	Name of Surveyor.	No.	Date of instructions.	Description of survey.	Date when confirmed under Rev. Stat. of Ontario, 1897, cap. 181, sec. 14, sub-sec. 4.
				boundary line of the Township of Oso, commencing the survey from the position of the original post between lots numbers fifteen and sixteen on the said line between the eighth and ninth concessions.	
2	James L. Morris.	627	July 18, 1900....	To survey the blank concession line between concessions numbers one and two west of Muskrat Lake, in the township of Westmeath, between the side road allowance between lots numbers ten and eleven, and side road allowance between lots numbers fifteen and sixteen and to have permanent monuments planted at the distance of fifty links on each side of the said blank concession line to define the allowance for road; also the blank concession line between concessions numbers three and four, east of Muskrat Lake, in the said township, from the allowance for road between lots numbers ten and eleven to allowance for road between lots numbers fifteen and sixteen, and to plant permanent monuments at the distance of fifty links on each side of said blank concession line to mark the limits of the allowance for roads.	April 10, 1902.
3	Tyrrell & Ford..	632	August 12th, 1901	To survey the allowance for road between lots numbers twelve and thirteen in the fifth concession of West Flamborough, in the county of Wentworth and to mark the same by permanent stone or iron monuments on either side of said allowance for road and also at the front and at the rear on either side of said road allowance.	March 10, 1902.
4	E. T. Wilkie....	637	May 10, 1902....	To survey the line between the fourth and fifth concessions of the township of Hinchinbrooke from lot number fourteen northerly to lot number twenty-three, and to plant permanent stone or other durable monuments, at the angles of the lots on each side of the concession road allowance.	October 6, 1902.

GEORGE B. KIRKPATRICK,
Director of Surveys.

AUBREY WHITE,
Assistant Commissioner.

DEPARTMENT OF CROWN LANDS,
TORONTO, December 31st, 1902.

(Appendix No. 16.)

Statement of Crown Land Surveys in progress during the year 1902, and amounts paid to date.

Number.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount paid.
				$ c.
1	June 20th, 1902.....	Alexander Niven..	Survey of Base and Meridian Lines, District of Algoma.....	4,800 00
2	July 10th, 1902.....	Wm. Galbraith ...	Survey of the township of Otto	1,000 00
3	July 10th, 1902.. ..	Alexander Baird.:	Survey of the township of Cane	1,400 00
4	July 10th, 1902....	G. E. Silvester...	Survey of the townships of Truax and Tudhope.....	2,550 00
5	July 10th, 1902.....	A. S. Code.	Survey of the township of Lundy	1,000 00
6	October 6th, 1902...	T. B. Speight	Survey of Boundary between Algoma and Thunder Bay Districts	600 00
				11,350 00

GEORGE B. KIRKPATRICK,
Director of Surveys.

AUBREY WHITE,
Assistant Commissioner.

Department of Crown Lands,
Toronto, 31st December, 1902.

(Appendix No. 17.)

Statement of Crown Lands surveyed, completed and closed during the year 1902

Number.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount paid.	No. of acres.
				$ c.	
1	27th June, 1901	T. J. Patten	Survey of line between timber berths 59 and 67	277 93	
2	30th October, 1901..	T. J. Patten	Survey of line between timber berths 156 and 162.....	370 31	
3	5th October, 1901 ...	D. J. Gillon	Resurvey of parts of the townships of Shenston and Tait.....	293 69	
4	23rd December, 1901	Alexander Niven..	Survey of Base and Meridian lines, Algoma.....	1,780 00	
5	23rd December, 1901	T. B. Speight.....	Survey of Base and Meridian lines, Algoma	529 56	
6	24th June, 1902	T. B. Speight.....	Survey of the township of Eby	1,606 64	22,95
7	24th June, 1902	T. B. Speight.....	Survey of Meridian line, District of Nipissing	2,033 19	

(Appendix No. 17.)—Concluded.

Number.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount paid.	No. of acres.
8	3rd February, 1902..	Tyrrell and Ford..	Survey of Coot's Paradise, County of Wentworth	347 71	
9	9th May, 1902.....	A. H. Macdougall.	Survey of part of the township of Macgregor	288 86	
10	10th July, 1902	James S. Dobie....	Survey of the township of Catharine	1,710 35	23,005
11	16th and 17th July, 1902	J. G. Sing.....	Survey of the tie lines connecting islands in Georgian Bay; and re-survey of part of the township of Gibson	730 75	
12	10th July, 1902	James Robertson..	Survey of the townships of Gross and Davidson	3,218 81	45,943
13	25th July, 1902... .	A. H. Macdougall.	Survey of the township of Ames....	1,607 76	22,968
14	18th July, 1902.....	T. R. Deacon.....	Survey of the township of Melick ..	2,178 75	31,125
15	13th March, 1902 ..	J. F Whitson ...	Exploration survey on Mississaga river	324 73	
16	9th September, 1902	J. F. Whitson	Survey of timber berths A and B west of Lake Temiskaming	136 00	
17	15th October, 1902..	J. F. Whitson ...	Survey of timber berth west of Onaping Lake, Algoma	28 70	
18		L. V. Rorke.....	Survey of east boundary and part of north boundary of the township of Catharine	200 00	
19	16th September, 1902	Joseph Cozens	Survey of the north boundary of timber berths 157, 163 and 169 Algoma	652 50	
20	6th May, 1902.....	John H. Shaw....	Resurvey of part of the township of Hardy, and islands in the French river	375 48	
21	14th November, 1902	T. J. Patten.....	Survey of part of line between timber berths 155 and 161, Algoma	149 80	
22			Copp Clark Co., printing maps	593 00	
23			James Robson, survey of islands in Balsam Lake	25 00	
24			C. Tarling & Co., mounting maps..	96 45	
25			J. F. Whitson, salary	1,000 00	
26			H. Treeby, salary	740 00	
27	10th March, 1902 ...		Times Printing Co., advertisement *re* survey of road allowance township of West Flamboro	42 00	
				21,337 97	145,993
28	June 21st, 1900.....	Demorest and Silvester	Balance of account exploration survey party No. 3	210 00	

GEORGE B. KIRKPATRICK,
Director of Surveys.

AUBREY WHITE,
Assistant Commissioner.

DEPARTMENT OF CROWN LANDS,
TORONTO, December 31st, 1902.

(Appendix No. 18.)

SURVEY OF OUTLINES OF TOWNSHIPS.

District of Algoma.

Toronto, June 2nd, 1902.

Sir,—I have the honor to submit the following report on the survey of the outlines of a number of townships in the Algoma District, pursuant to instructions from your Department dated the twenty-third of December, nineteen hundred and one.

Leaving Toronto on the twenty-fourth of January, nineteen hundred and two, I went to Sudbury and there organized the party. Proceeding as far as Rayside by the Canadian Pacific Railway, we reached a good timber road connecting with the lumber camp of Messrs. Holland and Graves, in concession five, township of Bowell, from which point it was necessary to cut a trail and by means of toboggans to transport our camp outfit and supplies to the northwest angle of the Township of Hutton, being also the southwest angle of the Township of Creelman, the twelfth mile point on the boundary between the Districts of Nipissing and Algoma and the initial point of my survey. As this point occurs in a small lake I determined it by intersecting the district line, clearly defined to the north and south of the lake, by the line between the Townships of Creelman and Hutton. The intersection point I found to be distant one chain and forty-two links west from the iron post marked "Hutton and "Creelman," standing beside a jack pine post, as noted in the instructions. Having taken careful observations for latitude and meridian, I ran west astronomically on chords of a parallel of latitude, in all a distance of twenty-four miles, each chord being six miles in length.

Commencing at the terminus of each of the chords referred to, meridians were run due south astronomically to the northern boundaries of the Townships of Foy, Harty, Hess and Moncrieff respectively, the closing on the nearest post being noted in each case. From the sixth mile post west of the initial point I ran due north to the base line run in the year eighteen hundred and eighty-eight by Ontario Land Surveyor Proudfoot, and noted the distance to the nearest post thereon. I also began at the post twenty-four miles west of the initial point and ran due north a distance of two miles, but owing to the sudden breaking up of winter I was obliged to desist before completing that meridian.

Except where such point occurred in a lake or river a wooden post was planted at every mile, and an iron post three feet long and one and one-quarter inches in diameter at the end of every third mile, the number of miles being marked on the side of the post nearest the starting point of each line.

Where a mile terminated in a lake or river the post was planted on the line on the nearest land and marked with the number of miles plus or minus the number of chains and links.

The wooden posts were made of the most durable timber to be found in the vicinity and wherever practicable a mound of stones was erected about the post and bearing trees marked and noted in the usual manner.

Astronomical observations, for the purpose of verifying the course of the line, were taken at frequent intervals.

The magnetic variation, except in two or three minor instances, was uniform at about five degrees and thirty minutes west.

Generally speaking, the surface of the country through which the lines surveyed pass, is rough and broken by numerous hills, swamps and small lakes.

The hills are chiefly of inconsiderable height, the most important being on the north side of Lower Onaping Lake, some of which have an altitude of about three hundred and fifty feet.

No large areas of good farming land were seen, the soil being chiefly sandy and stony, and it is not probable that any of the townships outlined will ever be much sought after for agriculture.

The greater part of the country embraced by this survey has been burned over at a period about forty years ago, since which time a growth of Banksian pine, white birch, poplar, spruce, balsam and tamarac has sprung up. The banksian pine has reached a diameter of from twelve to sixteen inches, maximum, but is generally short and scrubby in appearance. In the swamps small areas of spruce of fair quality for pulp wood were seen, but too scattered and limited in quantity to be of any great value. Following the fire referred to there have been fires of much more recent date and great extent, their position, where noted, being shown by brown color on the accompanying plan.

The only part of the original white pine forest remaining appears in the vicinity of the Townships of Bowell, Foy, Harty and Hess, and extends from one to two miles to the north of those townships, the largest area being at the south and east of Bigwood Lake in township number two. This timber is not large, and is more or less faulty. Smaller areas of white pine were seen on the second and third meridians in the fourth and fifth miles, that on the third meridian having already been cut over for square timber.

As the appointment of the timber estimator referred to in my instructions was not carried out I am not in a position to speak definitely of the interior parts of the townships outlined, but I believe the outlines to be a fair indication of the remainder.

The Laurentian formation, broken occasionally by narrow bands of diorites and diabase, prevails throughout for about twenty-two miles west from the Townships of Hutton and Creelman, Huronian, chiefly porphyry and quartzite, covering the remainder.

No indications of economic minerals were met with, but an examination by a geologist at a more favorable season of the year would be necessary before a proper estimate of the mineral value of the country could be gained.

The water in the lakes and rivers is of good quality and fairly stocked with the fish common to that part of Algoma District.

Onaping River and Michaud River are the only larger streams, the former with its lakes, expansions and rapid current being excellent for timber driving. The Michaud River has an average width of about seventy-five links with low banks.

Large game, including moose, caribou and red deer, were plentiful, the smaller and fur-bearing animals being scarce.

The camera, aneroid, barometer, and thermometer were used as directed and the results are to be found herewith.

Accompanying this report are a general plan, field notes and triplicate accounts. I have the honor to be, sir,

Your obedient servant,

(Signed) T. B. SPEIGHT, Ontario Land Surveyor.

The Hon. E. J. Davis,
Commissioner of Crown Lands, Toronto.

(Appendix No. 19.)

SURVEY OF BASE AND MERIDIAN LINES.

District of Algoma.

Haliburton, Ont., June 10th, 1902.

Sir,—I have the honor to submit the following report on survey of base and meridian lines in the District of Algoma, surveyed under instructions from your Department, dated December twenty-third, nineteen hundred and one.

Leaving Toronto on twenty-eighth January, nineteen hundred and two, I reached Sturgeon Falls the following day at noon, where I engaged the greater number of my party and obtained four dogs. I got to Straight Lake station, one hundred and twenty-six miles west of North Bay, on the morning of January the thirtieth and immediately commenced forwarding my supplies to the northwest angle of the Township of Craig, the initial point of my base line.

I reached this point with my party and supplies on the afternoon of the fourth of February, and after obtaining the necessary observations, commenced my survey the following morning, running west astronomically on six mile chords a distance of thirty-six miles, which point I reached on the seventh of March.

On the following day I commenced my forty-eighth mile line running north astronomically and continued same until the twenty-fifth of March, when the snow having melted in many places and the low lands being flooded, it was deemed advisable to get out to the railway before the lakes would break up. I accordingly moved out with toboggans and sleighs to Ramsay Station on the Canadian Pacific Railway, about forty miles via lakes, paid off the party and returned to Toronto, leaving twenty miles of the line still to be run.

On twenty-third April, hearing that the ice had gone out of the lakes, I again left for the scene of operations and after engaging another party left Biscotasing with canoes on the twenty-ninth of April, reaching the line with my supplies on the second of May. The line was then continued north to the southern boundary of Ontario Land Surveyor Stewart's township number eighteen on the Canadian Pacific Railway. I reached this point on the evening of the seventeenth of May. Another mile northeasterly brought the party to the Canadian Pacific Railway, about three miles easterly of Woman River Station, and I returned to Toronto on the twenty-first of May.

The line was well cut out and well blazed. Wooden posts were planted and bearing trees taken at every mile and iron posts every three miles marked with the number of the mile from one to thirty-six on the base line and one to forty-eight on the meridian line. Where the end of a mile came in a lake or river, the post was planted on the nearest land and distance noted and post marked with a plus or minus sign. Stones were put around the posts where they could be had.

General Description.

The country along the thirty-six mile line or base line is rough and rocky with many hills, in fact, it may be said there is no level land along the whole line and no land fit for agricultural purposes.

The soil is sandy and rocky, cliffs and large boulders are in evidence nearly the whole way. The first fourteen miles from the Township of Craig is mostly through brule from twenty to forty years old, and there is very little timber of much value within sight.

At about the fifteenth mile the line enters a pine country, which continues to about the thirtieth mile. The timber is not very large, but there is a considerable quantity of it, and there is pine all around Sable Lake, the largest lake met with along the line. Near the end of the thirty-fifth mile the line enters the great brule, which extends to the Canadian Pacific Railway, broken occasionally by tracts of green timber.

The meridian of forty-eighth mile line running from the west end of the base line, passes through brule with occasional tracts of green timber for about thirty miles.

The country is very hilly and rocky, a few green pines are met with here and there, but as far as can be seen to the east and for some distance west, the country is of little value. Around Green Lake, however, and other lakes to the east, there is considerable red and white pine of fair size and quality.

On the fifth mile I made this note: "Nothing within sight but dead pine and bushes, granite rock and large boulders."

At a hill one hundred and fifty feet high at nine and three-quarter miles I made the following note: "From this hill I can see many miles in every direction, the country is rocky, hilly and mountainous, and all brule with the exception of patches of green pine here and there and spruce and tamarac in the valleys; first fire about thirty-five years ago, and second about ten years ago. Rock is granite and gneiss."

On the sixteenth mile I noted "Pine opposite this mile two miles west."

From the thirty-first mile to the forty-eighth the line passes through green timber principally, although brule was occasionally met with from the thirty-first mile to the forty-eighth mile, some of it being of recent date.

There is considerable scattering pine from the thirty-third mile north to the end of the line, the thirty-fourth and thirty-fifth miles have been cut over for square timber. A branch of the Spanish River was crossed on the forty-second mile, in the vicinity of which and for some distance along the line there is considerable good spruce, also large and tall Banksian pine.

Water.

The Sable River drains the southern portion of the territory through which the line passes, small lakes are very numerous. Owl Lake and many large lakes to the east of the line fall into the Mississagua River. Farther north the lakes empty into the Spanish River and all these rivers find their way to the Georgian Bay.

Timber.

The timber is red and white pine, banksian pine, spruce, balsam, white birch and poplar with some tamarac in the valleys.

The geological formation along the whole line is the Laurentian, and I did not notice a contact with anything else.

The depth of the snow was from two and a half to three feet during February and a part of March.

Moose and red deer were very plentiful along the base line from the thirteenth to the thirty-third mile in the timbered country and signs of the usual fur-bearing animals were often met with. Wolves were frequently heard and their tracks seen.

Partridges were very plentiful, and the lakes, no doubt, abound with fish, but we had no appliances for taking them through the ice.

Astronomical observations were frequently taken, the details of which will be found in the field notes. The magnetic variation of the needle was generally steady at five degrees west.

Herewith are plan of survey, field notes and account, also reading of barometer along the line of survey.

I have the honor to be, sir,

Your obedient servant.

(Signed) A. NIVEN, Ontario Land Surveyor.

Hon. E. J. Davis,
Commissioner of Crown Lands, Toronto.

(Appendix No. 20.)

SURVEY OF BASE AND MERIDIAN LINES.

Algoma District.

Haliburton, November 25th, 1902.

Sir,—I have the honor to submit the following report on the survey of base and meridian lines in the District of Algoma, made by me during the past summer under instructions from your Department, dated 28th June, 1902.

I left Toronto on the first of July and proceeded to Biscotasing, on the Canadian Pacific Railway, arriving there on the morning of the following day, and on the third of July left Biscotasing with my party, numbering eighteen in all, including the geologist, Mr. L. C. Graton, in six canoes, taking a considerable portion of my supplies with me. I went southwest up Biscotasing and Rumsay lakes, being Spanish River waters, and up a branch of the Spanish River to Spanish Lake. Thence by lake and portage across the height of land into Mississagua waters and Mississagua Lake. Thence southerly to Upper Green Lake, where there is an old post of the Hudson Bay Company. Thence by the Mississagua River and its expansions to a point some distance east of where my meridian line of last winter crossed said river, and thence southwesterly by lake and portage to the 36 mile point on my base line of last winter from the northwest angle of the Township of Craig, this being my starting point on my present survey. I reached this point, ten miles south of the Mississagua River, on the tenth of July, and on the morning of the eleventh commenced my survey by running west in continuation of the aforesaid base line. This I continued a distance of fifty-four miles, or to the nintieth mile, crossing the Mississagua River at the seventy-fourth mile. I then ran a line north astronomically from the northeast angle of the Township of Curtis 79 chains 95 links, where I intersected my base line at eighty-nine miles seventy-six chains twenty-eight links, and the ninety mile post was planted at the intersection of these lines. I also located P. L. S. Herrick's meridian line of 1857 and produced it north from his eighteen mile post thirty-five chains, sixty-four links, coming out twenty chains twenty-seven links west of my forty-second mile post.

Returning to the sixty-sixth mile post on the aforesaid base line, I ran north astronomically twenty-four miles, crossing the Mississagua River at the fifth, seventh and on the eighth mile just west of Aubrey Falls. From the twenty-fourth mile post on this line I ran east astronomically, and from the sixth and eighteenth mile posts on this east line I ran six miles south and three miles south with the hope of finding a better timbered country, but as the country to the south was burnt about five years ago, I continued my east line through green timber most of the way twenty-nine miles fifty-eight chains fifty-nine links to my last winter's meridian, coming out two chains twenty-seven links south of the twenty-fourth mile post, finishing my work on the eleventh of October, and reaching Biscotasing on the fifteenth and Toronto on the sixteenth of that month.

The work of getting in supplies was a very laborious one, and three men were almost constantly employed canoeing. The packing and moving camp along the line, owing to the hilly and rocky country, was also a very difficult matter.

The lines were well cut out and well blazed, wooden posts planted at every mile, and iron posts one and one-quarter inches in diameter every three miles, marked with a cold chisel on the side from which the miles numbered, and stone mounds built round them where they could be obtained. Bearing trees were also marked B. T., and their size, course and distance from the posts noted. Where the end of a mile came in a lake or river, the posts were planted on the line on the nearest land and the distance noted, and in such cases the iron posts were marked with a plus or minus sign as the case might be.

Astronomical observations were taken whenever practicable, the details of which will be found in the field notes. The magnetic variation of the needle averaged four degrees thirty minutes west.

General Description.

The whole of the base line from the thirty-sixth to the ninetieth mile is through a rough, rocky, hilly and in many places mountainous country, hills rising to a height of two hundred and three hundred feet, and sometimes five hundred feet. There is little or no farming land along the whole route of the survey. The soil is generally sandy, and large boulders often cover the ground for large distances. The hills are nearly always rocky and of the Laurentian formation ; in fact, the greater pat of the country may be said to be rock, boulders, stone, gravel and sand, and where not burnt covered with mixed timber, including spruce, white birch, balsam, poplar, banksian pine and red and white pine in places. There is considerable brule along this line, particularly after passing the sixty-seventh mile. In fact, from the sixty-seventh to the eighty-fourth mile the country was almost all burnt. West of the eighty-fourth mile the country is timbered with many groves of maple and even black birch in places, and towards the end of the line with large spruce, white pine and cedar.

The twenty-fourth mile meridian line runs over a very mountainous tract of country, many of the hills being five hundred feet in height. It crosses the Mississagua River three times and runs through the best pine lands within the limits of the survey. The thirty mile base line going east from the twenty-fourth-mile point on the meridian line, although generally hilly, runs in places through spruce swamps and flats, and most of the way through green bush, spruce and banksian pine being the principal timber.

The six-mile meridian south from the six-mile post on the thirty-mile base line crosses the Wenebegon River three times and runs through green bush and brule alternately.

The three-mile meridian south from the eighteen-mile post on the thirty-mile base line is through brule all the way, the first two miles being through green bush thirty-five years old and the third mile through country destroyed by fire about five years ago. From a point about two and a half miles on this line the country can be seen from four to six miles south, east and west, and presents a most desolate appearance. I made the following note in my field book : "Hilly, broken, rocky, brule; dead pitch pine, spruce and birch; granite rock, boulders, stones and sand; not a green tree standing." I discontinued this line at the end of the third mile, where I struck a lake of considerable size, the water no doubt flowing south into the Mississagua River.

From what I saw of the country from the end of the sixth mile line and the three mile line I have no doubt that the brule extends almost the whole way across the country from the Wenebegon River to near my meridian line of last winter, or in other words had the thirty mile base line been run from the eighteen mile post on meridian line instead of the twenty-fourth, it would have run through burnt country almost the whole way.

Timber.

Commencing at the thirty-six mile post on base line there is considerable scattering of pine of good quality for some distance south and west of this point, in fact, there is more or less white pine to the forty-first mile, where it becomes the principal timber, and extends to the forty-fourth mile, when it again thins out. From the top of a hill on the forty-ninth mile I made the following note: "Can see a long way west, northwest and southwest; very mountainous; timber banksian pine, white pine, spruce, birch and balsam, more or less red and white pine everywhere in view."

White and red pine was afterwards noted in greater or less abundance to the end of the sixty-seventh mile, and also from the eighty-fourth to the end of the eighty-ninth mile, and was the principal timber on the ninetieth mile, and south to the Township of Curtis, and as far west as could be seen.

On the twenty-four mile meridian there is more or less white and red pine on the first five miles, or to the Mississagua River, where it enters the best block of pine embraced by the survey. The line may be said to run through a pinery from the fifth to the end of the seventeenth mile.

In some places there is nothing but pine. It extends east to the Wenebegon River and a number of miles to the west upon which the timber estimators, Messrs. D. F. McDonald and William Robinson, will report.

From the seventeenth to the twenty-third mile the line passes through alternate strips of brule and green timber, of which a considerable quantity is large and tall banksian pine and spruce.

On the twenty-third mile good red and white pine with spruce and cedar was entered, and continued to near the end of the line, bearing away to the northwest.

The thirty-mile base line going east passes through alternate pieces of brule and green timber, chiefly spruce and banksian pine, to the end of the fifth mile, when it enters a dead banksian pine brule extending across the Wenebegon River and to the end of the eighth mile. There is a little white pine on the ninth mile, and after that no more was met with to the end of the line. The country from the sixteenth to the twenty-first mile is almost level with spruce and tamarac swamps, and then hilly and broken to the end of the line with good timber for pulp in many places, principally spruce with banksian pine.

There is quite a quantity of pine along the Mississagua River from the meridian line down to within a few miles of the crossing of the base line

visible from the river, upon which the estimators will report, and also up stream to Min-nees-sagua Lake. I may say that in many places throughout the whole survey the line passed through much spruce and banksian pine of large size fit for lumbering purposes and pulp.

Water.

The country is certainly well watered. The Mississagua River has a general width of about two hundred feet with many expansions, and carries a large volume of water. It has numerous rapids and falls, the chief of which is Aubrey Falls and Rapids on the eighth mile of the meridian line. The difference in level between the head and foot of Rapids and Falls being one hundred and sixty feet, this is a fine water power. By the construction of a dam at the head of the Rapids the water could be diverted into an old channel and timber driven through at a moderate cost. This river falls into Lake Huron. The Wenebegon River, one hundred feet wide, and its branches, also the Aubinadong are tributary to the Mississagua.

There are numerous lakes within the limits of the survey, as will be seen by the plan, most of which have the usual kinds of fish, pike, pickerel, etc. Some trout streams and lakes were met with to the west in the vicinity of Garden River. Moose and in some places red deer were very plentiful; wolves were often heard, and the usual fur-bearing animals inhabit the forest. Beaver were seldom met with. Partridges were numerous.

Barometric observations were taken, a copy of which is sent herewith. Our first snow was on the eighth of October, and lay on the ground two days.

A number of the lakes and canoe routes put on the plan and the traverse of the Wenebegon and Embarass Rivers, as well as Min-nees-sagua Lake and most of the Mississagua River are from traverses made by Mr. D. F. McDonald while estimating timber, and some of the smaller lakes, as well as Seven Mile Lake, are from sketches by Mr. Graton while on his work as geologist.

Accompanying this report I beg to submit field notes and plan of survey and account.

I have the honor to be, sir,

Your obedient servant,

(Signed) A. NIVEN, Ontario Land Surveyor.

Hon. E. J. Davis,
Commissioner of Crown Lands, Toronto.

(Appendix No. 21.)

SURVEY OF A MERIDIAN LINE.

District of Nipissing.

Toronto, December 24th, 1902.

Sir,—I have the honor to submit the following report on the survey of a meridian line in the District of Nipissing made by me under instructions from your Department, dated 24th June, 1902.

Having completed the subdivision of the Township of Eby as previously reported to your Department, I commenced the survey of the meridian

line at the northwest angle of that township as marked by a cedar post six inches square planted by Ontario Land Surveyor Niven, and subsequently by a new cedar post and iron post planted by myself, and ran due north astronomically a distance of forty-five miles, fourteen chains and fifty-four links to the Abitibi River at a point about two miles west from Koochiching Falls or nearly seven miles from the outlet of Lower Abitibi Lake. The return journey was made by way of Abitibi Post, and thence by the usual canoe route to connect with steamboat navigation on Lake Temiskaming.

In running the line frequent astronomical observations were taken, and at the end of every mile—except where it terminated in a lake or river—I planted a post of as durable wood as could be obtained, with, in addition, an iron post one and a quarter inches in diameter at the end of every third mile, marking on the south side of each post the number of the mile from the point of commencement. When a mile terminated in a lake or river, the number of the mile plus or minus the distance from such termination was marked upon a post planted on the nearest shore intersected by the meridian. A cedar post and an iron post were also planted above high water mark on the northern bank of the Abitibi River at the north end of the meridian run.

Associated with me were Mr. S. S. Bolton, in charge of the mineralogical and geological part of the exploration work, and Mr. E. B. Lloyd, as timber and land estimator, the duties of these gentlemen including explorations on both sides of the line, as far as compatible with the rate of progress.

General Features.

The country traversed by the first twenty miles of this meridian is rough and hilly and broken by many rocky bluffs, those in the eighteenth mile being the highest, and reaching an altitude of about three hundred and fifty feet above the valley of the Black river, which crosses the line in the twenty-first mile. Many lakes varying in length from a few chains to three or four miles occur in this part of the line, and to the east of the line for a distance of many miles, the appearance of the country is even less inviting. In my party were Indians who seemed to know the country well, and from them I gathered that the broken country described extended in a northeasterly direction from Kenogami Lake to the inter-provincial boundary, with very little land of any value for agriculture.

From this information and my own personal observations I conclude that the Temiskaming clay belt has now been included by the townships already surveyed.

The country to the west of the south twenty miles of the meridian appears to be less mountainous, but broken by many smaller hills. Between the Black River valley and the Abitibi valley the country is more rolling and undulating, there being no hills exceeding one hundred feet in altitude, the clay hills adjacent to the Abitibi River being the highest. The height of land between the Hudson Bay and the St. Lawrence River basins was crossed in the early part of the ninth mile.

Soil.

With exception of a clay belt about three quarters of a mile in breadth on the southern side of the Black River, the soil in the south twenty-three miles of the meridian is sandy and rocky, with occasional small areas of clay loam. The banks along the upper waters of the Blanche River are clay and clay loam, but this changes to sand and rock at a distance of a few chains from the stream. The effect of this is to give the traveller by canoe

a better idea of the country than is borne out by a little examination inland. From the twenty-third mile northward the soil is generally clay and clay loam, with low, rocky ridges and swamp lands at intervals, but on the whole a gradual improvement was noted up to the thirty-second mile, beyond which a good clay area was general. I estimated from the data obtainable that not less than sixty per cent. of the land in the north twenty-two miles could be classed as good farm land.

Timber.

Second growth timber succeeded a fire which seems to have swept over the country as far as the twenty-second mile about twenty-five years ago, only occasional small areas of the original areas of the original forest having escaped. Banksian pine, white birch, poplar and spruce from two to six inches in diameter comprise the second growth referred to.

Along the remainder of the meridian the timber is larger and,—like the soil—improves in value as we proceed north. It is composed chiefly of spruce, tamarac, white birch, balsam and poplar, the spruce being generally from six to ten inches in diameter with a maximum of eighteen inches. An insect pest, which made its appearance about ten years ago has killed nearly all the tamarac trees, and the spruce is now suffering from the same or a similar cause, the smaller trees usually being the first victims of the scourge. While there is no great quantity of timber valuable for lumbering purposes, there is in this district a good field for the manufacture of pulp, the spruce being generally of the most desirable size and quality for that industry. These statements refer chiefly to my personal observation along the line itself, a more comprehensive report under this head being rendered by Mr. Lloyd to the Woods and Forests branch of your Department.

Minerals.

Under this head I append a summary report by Mr. Bolton, his detailed report being sent to the Bureau of Mines.

"Geology of the District lying about Speight's Meridian Line, 1902. The country traversed by the Meridian Line lies wholly within the Archean. Rocks of both Huronian and Laurention age are present, the latter, however, only in small amount. Reddish hornblende granite of Laurentian age is met with six miles east of the seventh mile of the line near Kapakitawewecimok Lake, and extends eastward two miles to the first lake west of Amikojigami Lake. There is also a small outcrop of red granite along the portage from the Blanche River to the White Clay River Everywhere else rocks of Huronian age are seen. Throughout the clay belt, extending twenty miles south of the Abitibi, rock exposures are few in number, and are almost invariably Huronian diorite. South of the clay belt there is a considerable variety of the Huronian rocks, viz. diorite, conglomerate, sometimes carrying jasper, pebbles, slate, diabase, greywacke, quartzite, etc. In a few places we found quartz veins cutting dioretic rocks : a picked sample from one of these was assayed for gold and silver, but was found to contain neither. Speaking of the region as a whole, however, it is one which is not unfavorable to the occurrence of economic minerals."

Water.

The north branch of the Blanche River takes its rise in Kapakitawewecimok Lake about five east of the seventh mile and flowing southwesterly enters Sesekinika (Cluster of Islands) Lake, which it leaves at about one

mile east of the middle of our seventh mile, and flowing thence southerly enters Kenogami Lake, at two miles from the northwest angle of the Township of Eby. This stream has an average depth of about two feet with a breadth of from fifty to seventy-five links, with clay banks only two to four feet high.

Gall Lake, about a quarter of a mile west of the centre of the twelfth mile seems to be the source of the White Clay River. After flowing about three miles in a southerly direction a short distance to the east of the meridian, this stream expands into Swan Lake and Kekekwabik Lake turns eastward and northward and enters the Black River about six miles southeast from our crossing of the latter in the twenty-first mile. The White Clay River is similar in size and depth to the Blanche River, but has numerous rapids and one fall of about twenty feet.

The Black River, a fine stream of from two to three chains in width and about four feet deep, with banks four to ten feet high, takes it rise about twenty miles east of the fifteenth mile post, and flowing northwesterly crosses the meridian in the twenty-first mile. It has three falls capable of development as water powers, between the point where it crosses the line and its junction with the Abitibi. The first of these falls has a height of about thirty-five feet, the second about forty-five feet, and the third about fifteen feet.

In the twenty-eighth mile the line crosses the Pike River, a stream about one chain in width and two feet in depth, with numerous rapids and a swift current, its banks being about three feet high. The point at which this stream enters the Black River was not determined by me.

From the middle of the thirty-seventh mile to the fortieth mile the line crosses and recrosses the Shallow River eight times. This stream has a breadth of fifty links with a depth of three to four feet, and banks eight feet in height. In many places it is filled with driftwood and "jams", and is of no service as a canoe route. In addition to these rivers and numerous small creeks, the lakes mentioned herein under the head of "general features" serve to supply the country with an abundance of water.

Game and Fish.

Moose, bear and beaver are plentiful, red deer, caribou, mink and marten being present in smaller numbers.

Pike, pickerel and perch are abundant in Kenogami Lake, but few, if any were noticed in the other waters.

Accompanying this report are a general plan and field notes, a record of barometric and thermometric readings as required by the instructions, photographs taken at various points during the progress of the work, also accounts in triplicate.

I have the honor to be, Sir,

Your obedient servant,

(Signed) T. B. SPEIGHT,

Ontario Land Surveyor.

The Honorable E. J. Davis,

Commissioner of Crown Lands,

Department of Crown Lands, Toronto.

(Appendix No. 22.)

TOWNSHIP OF EBY.

District of Nipissing.

Toronto, 1st December, 1902.

Sir.—I have the honor to submit the following report on the survey of the Township of Eby, in the District of Nipissing, performed by me under instructions from your Department dated 24th June, 1902.

This township is bounded on the south by the Township of Blain, on the east by the Township of Otto, and on the north and west by the unsurveyed lands of the crown. All four of its boundaries were surveyed by Ontario Land Surveyor A. Niven, in 1889, its designation on his plan of that season's work being township number twenty-seven.

Taking three men I left Toronto on 27th June, and on arriving at Mattawa I organized the necessary party. We then proceeded by the regular steamer up Lake Temiskaming to the terminus of the route at New Liskeard —once called Thorneloe—at which point we changed to the river boat plying on the Blanche River, and were carried up that stream about twenty-five miles to Wilson's Landing on lot twelve, concession four, Township of Ingram, at the head of steamer navigation. The next three days were occupied in travelling by canoe a distance of about forty miles up the Blanche River to Round Lake in the Township of Otto. Fifteen portages, ranging from five to forty chains in length, were encountered in this part of the journey. From the west side of Round Lake I cut a trail in a southwesterly direction to the east boundary of the Township of Eby.

At the southeast angle of this Township I found a tamarac post in a stone mound as indicated by Mr. Niven's field notes, and I planted, in addition, an iron post marked " Eby", "Blain" and "Marquis" on the northwest, southwest and east sides respectively.

Beginning the survey at this point I retraced, opened up and rechained the east boundary, and at the distance of eighty chains from the initial point I took an astronomical observation and ran the front of the second concession, planting posts at every forty chains. Using this line as a base I then sub-divided the whole township into regular lots of forty chains in breadth and eighty chains in depth with an area of 320 acres each, as nearly as practicable, planting posts of as durable wood as could be obtained at all the front angles. I also planted at all four angles of the township, hollow iron posts three feet in length, one and seven-eighths inches in diameter, pointed at one end and forged at the other, the names of the respective townships so defined being marked thereon.

All the concession lines and alternate side lines were run by the "transit", and well opened out and blazed. I also retraced, opened up and rechained the south and north boundaries, with the exception of the parts of the latter broken by the larger water areas. At the terminations of lines run from the interior to the township boundaries any closing differences were eliminated by planting the posts at the intersections and destroying those planted by Mr. Niven, as directed by the instructions, the actual distances between such intersections being shown in the field notes and plan.

I did not rechain the west boundary, but calculated the depths of concessions thereon from Mr. Niven's notes and my closings upon the posts planted by him.

General Features.

About sixty per cent. of the whole township is comparatively level, chiefly low lying, with a higher plateau occurring in the eastern parts of concessions two and three. A range of hills reaching an altitude of about one hundred feet, enters at the northeast corner and covers nearly the whole of the northeast quarter of the township, while a second range, of similar height and appearance, comes in from the southwest and extends to about half a mile north and three-quarters of a mile east from the south and east boundaries respectively.

Kenogami (Long) Lake, an expansion of the north branch of the Blanche River, occupies the greater part of lots six to eleven in concession six, and a tributary of the south branch of that river flows southeasterly across the southwesterly quarter of the township.

Soil.

About one-half of the total area is good clay soil, but of this not more than fifty per cent. appears to be immediately available for farming, the remainder being too wet and swampy to be utilized without a comprehensive system of drainage. The fact that the survey was made during the unusually wet summer of 1902 may affect the latter proportion. The most desirable farm lots lie in the valley of the tributary of the Blanche River above referred to.

With the exception of the plateau noted in concessions two and three and the range of hills at the southwest corner of the township, the south three concessions consist chiefly of clay and clay loam, while a belt of the same extends across the centre of concessions four and five. The remaining half of the township is sandy and rocky, but the plateau referred to consists of sand without rock, its elevation above the surrounding country being from fifty to seventy-five feet. Small areas of clay are found at intervals in the part classed as sandy and rocky.

Timber.

There is no considerable quantity of merchantable timber—other than pulp wood, of which there is a fair amount in concessions one, two and three,—in the township. A small area of perhaps seventy-five acres of white pine of good quality was seen on lots four and five in concession three. With the exception of the plateau and the swamp lands lying to the south of it—both of which are covered thickly with small second growth timber of no value—the timber on concessions one, two and three comprise Banksian pine, spruce, white birch, tamarac, poplar and balsam, much of the first four varieties being of fair size and quality. The timber in the northern three-quarters of concession six is similar to that described, all the remainder of the township being covered with small second growth, from two to six inches in diameter, following brule of about twenty-five to thirty years of age.

Water.

Numerous small creeks in addition to Kenogami Lake and the tributary of Blanche River, supply an abundance of excellent water, but there are no rapids nor falls to furnish power from that source.

Minerals.

No indications of valuable minerals were seen, and the magnetic variation was uniform throughout at about eight degrees and thirty minutes west.

Game.

Moose, bear and beaver are numerous, while red deer, caribou, mink and marten were seen occasionally. Pike, pickerel and perch are abundant in Kenogami Lake.

No attempts at settlement have been made as yet in or about this township, but, judging by the continuous influx of settlers into the Temiskaming District, the time is not far distant when the Township of Eby will have its share of home-seekers.

Accompanying this report are a general plan, a timber plan and field notes of the entire survey.

I have the honor to be, sir,

Your obedient servant,

(Signed) T. B. SPEIGHT.
Ontario Land Surveyor.

The Hon. E. J. Davis,
Commissioner of Crown Lands, Toronto.

(Appendix No. 23.)

SURVEY OF THE TOWNSHIP OF OTTO.

District of Nipissing.

Bracebridge, Ontario, December 30th, 1902.

Sir,—I have the honor to submit the following report of the survey of the Township of Otto, in the District of Nipissing, under instructions from your Department, dated the tenth day of July, nineteen hundred and two.

After procuring supplies at Lake Temiskaming I proceeded up the Blanche River in canoes to Round Lake, when I began to survey by retracing the south boundary westerly from the lake.

The country has been burnt over about thirty years ago, and the present growth of timber is principally spruce, poplar, white birch, jack pine, and balsam, from four inches to ten inches in diameter.

About forty per cent. of the township is fairly good farming land, the most extensive tracts of good land are found along the Blanche River and lots ten, eleven and twelve in concessions three and four, where the land is comparatively level and the soil consists of clay and clay loam with a mixture of sandy loam in some places. The easterly and northerly portions of the township are much broken by rocky ridges with gravel and boulders.

The magnetic variation was from six degrees west to twelve degrees west; at the small lake in lot number seven, concession five, the variation was seventy-four degrees west, the rock exposures here showing veins of quartz with magnetite. To the north of this point the rocks for the most part are Huronian schists while to the south they are gneiss and granite.

The lower portion of the Blanche River has a width of one hundred feet and is navigable for small steamers from Round Lake to the rapids in concession four. Along this portion of the river the clay forms a fairly level surface back from the edge of the river; which has banks from ten to twenty feet high.

Round Lake is a fair sheet of water with low wooded shores and long stretches of sand beach at low water. It is well stocked with pickerel, pike, whitefish and herring.

Accompanying this report are plan, field notes and timber map.

I have the honor to be, sir,

Your obedient servant,

(Signed) W. GALBRAITH,
Ontario Land Surveyor.

The Hon. E. J. Davis,
Commissioner of Crown Lands, Toronto.

(Appendix No. 24.)

TOWNSHIP OF CATHARINE.

District of Nipissing.

Bruce Mines, Nov. 28th, 1902.

Sir,—I have the honor to submit the following report of my survey of the Township of Catharine, in the District of Nipissing, made under instructions dated 10th of July, 1902.

I left Bruce Mines to commence this survey on August 9th, 1902, having arranged for my party to assemble at Mattawa. From there we proceeded by rail to Temiskaming and thence by steamer to Tomstown, the head of navigation on the Blanche River. At this point we took to our canoes and proceeded up the north branch of the Blanche River, arriving at the south boundary of the township on Tuesday, August 16th, 1902. I located the south boundary of my township, being also the north boundary of the township of Marter, after a short search, and camped where this line crossed the river. Before leaving this camp, I cleared out my south boundary from end to end, and also ran portions of such side lines as were convenient. I then moved east along the south boundary of the township about two miles to a more convenient place, for surveying the south-east portion of the township.

I first ascertained, as instructed, if the line run last year by L. V. Rorke, O. L. S., and accepted by your Department as the east boundary of the Township of Catharine was correct, that is, north astronomically. Having found such to be the case I proceeded to chain this line across concession I, and found that my chainage agreed with Mr. Rorke's to a link. I then started the line between concessions I. and II., and from this point the survey was carried on in the usual manner.

Upon chaining my west boundary, however, I found that my chainage was considerably longer in every mile than that called for in the field notes. I made the total distance from southwest corner to the northwest corner 481.96 chains, whereas the field notes called for 480.00 chains. I

had no definite instructions to cover this point, but knowing that it is the custom of your Department to make all township boundaries straight lines, I proceeded to run a straight line from my northeast to my northwest corner, the bearing of this line being north 89 degrees 43 minutes west. The line run by Mr. Rorke was run west astronomically and to use it would have necessitated a considerable bend in the line. I therefore considered it advisable to leave this portion and run a new line.

I exercised every possible care in the planting of posts and made stone mounds about three feet in diameter, and a foot to a foot and a half high wherever possible. These are all recorded in the field notes.

The north branch of the Blanche River runs through the township from north to south. High rock ridges rise from two hundred to two hundred and fifty feet on either side of the river, and extend for a considerable distance back. The land in the valleys is fine loam with clay subsoil, but is very much broken up by these ridges of rock. A belt of sand runs along the eastern side of the township and this portion is of very little value for either timber or agriculture.

The greater portion of the township has been burnt over about twenty-five or thirty years ago, and on the east side of the river there is very little valuable timber; west of the river, however, there is a considerable area of fine spruce timber which improves towards the northern portion of the township, the northwest corner being covered with fine spruce, balsam, birch, poplar and jack pine of very large size.

Game is very abundant, large numbers of moose being seen. Bear and beaver are also quite plentiful, while partridge are in great abundance.

The principal geological formation is Huronian, with some granite ridges on the western side of the river. No economic minerals were seen, although the magnetic variation in the northwest portion of the township was very unsteady. East of the river the magnetic variation remained fairly constant at about an average value of 7 degrees 30 minutes west.

The plan, timber plan and field notes, together with my account duly attested are enclosed.

I have the honor to be, sir,

Your obedient servant,

(Signed) JAMES S. DOBIE,
Ontario Land Surveyor.

The Honorable E. J. Davis,
Commissioner Crown Lands, Toronto.

(Appendix No. 25.)

TOWNSHIP OF DAVIDSON.

District of Nipissing.

Glencoe, Ont., December 9th, 1902.

Sir,—I have the honor to submit the following report of the survey of the Township of Davidson, in the District of Nipissing.

We proceeded to the township by rail via Mattawa as far as Temiskaming, Quebec, thence by steamer to the head of Lake Temiskaming, where we were transferred to a smaller steamer and continued up the Blanche River to Tomstown, near the east boundary of the Township of

Evanturel, thence by canoes still following the Blanche River and the south branch of the same with its chain of lakes, to within a quarter of a mile of the northeasterly angle of the township.

The river from Tomstown to where we left the water near the head of Kushog Lake is a good canoe route, except that from about lot ten in the fourth concession of Evanturel to about lot eleven in the fourth concession of Dack, there is a considerably swift current, and several falls, necessitating the towing of canoes and the making of nine portages, one of which latter is somewhat formidable, owing to its being about a mile in length and over a very steep high hill.

Having reached the northeasterly angle of the Township of Davidson we followed the easterly boundary to the southeasterly angle or point of commencement of my work.

At each of the angles of the township were found the wooden posts as set forth in the instructions, standing and in a good state of preservation, and beside the same I planted the iron posts furnished by the Crown Lands Department for the purpose. These posts were marked with the name of the township or townships, and in each case placed with the name facing the township of that name.

The boundaries of the township were readily traced on the ground and the position of each of the boundary posts was found. In some instances the posts were decayed and fallen down, and such were renewed as shown in the field notes of the survey.

As long sights could be had on the boundaries they were used as base lines from which I turned off angles and carried on the work of survey.

The township is somewhat uneven in its surface and also in the character of its soil. The surface varies from a considerable part of swampy land, and sandy and clay flats to sandy knolls and stony hills and rocky ridges.

In many places the soil on the rocky land is very shallow and the great proportion of the sandy land is not well adapted for agricultural purposes. There is some fairly good land, but the proportion that is fit for agricultural purposes is comparatively limited in area.

The township is situated on the watershed between the Blanche and the Montreal Rivers. The lakes forming the chain through the northwest part of the township are from two to four chains in width, with even sandy shore lines and mostly of a shallow nature.

As will be noticed on the map the lake on lots seven and eight is concessions four and five has an outlet at each end, the water of the northerly one going to the Blanche River and that of the southerly one to the Montreal River. The connecting channels between the lakes are mostly narrow shallow streams, and not canoeable. This chain of lakes with easy portages of considerable length seems to form a route for trappers between the two rivers.

Many of the small streams shown by the field notes and plan are fed only by the swamps within the township and consequently many of them will be stagnant or dry for a considerable part of the year during seasons of ordinary rainfall.

The township is for the most part green, the greater part of the dry land being covered with a thick growth of small pitch pine from one to six inches in diameter, and in places mixed with small birch and poplar. The sandy knolls generally have a scattering of scrubby pitch pine from six to eight inches diameter and some of the sandy flats have nice patches or open groves of tall pitch pine from six to ten inches diameter.

Some of the low land has scarcely any timber except a scattering of small spruce and tamarac, but the greater part of the low land grows spruce, mixed in places with tamarac, balsam and alders.

In general the township is not well fitted for cultivation. There is no timber worth mentioning fit for lumbering purposes, and I noticed very little indication of mineral deposits. It is fairly well watered with small streams and lakelets, which provide easy drainage for the low lands, and while generally unfit for cultivation, may in time become useful for grazing purposes.

Evidence exists of beavers having been plentiful along some of the small streams and lakelets, but there does not seem to be many at present.

Mooose are plentiful, while caribou and red deer seem to abound in considerable numbers. Bears are numerous and wolves were frequently heard.

I might say that in my field notes of the township those given of the boundaries which were already run, are only copies of those sent me along with my instructions, except that I have mentioned new posts and bearing trees where the same were placed and taken by me.

Accompanying this report I beg to submit :

(a) A map of the township.

(b) A timber map of the same on tracing cloth.

(c) Field notes of the survey.

I have the honor to be, sir,

Your obedient servant,

(Signed) JAMES ROBERTSON,
Ontario Land Surveyor.

Hon. E. J. Davis,
Commissioner of Crown Lands, Toronto.

(Appendix No. 26.)

SURVEY OF THE TOWNSHIP OF GROSS.

District of Nipissing.

Glencoe, December 24th, 1902.

Sir,—I beg to submit the following report on the survey of the Township of Gross, in the District of Nipissing.

The survey was performed in conjunction with the survey of the Township of Davidson, which it adjoins to the north and which I have already reported upon.

We reached the township as described in my report on the survey of Davidson, and comenced work at the southeasterly angle.

The boundaries, having been surveyed previously, were readily traced upon the ground. The wooden posts at the angles were found standing and in a good state of preservation, and beside each, except the one at the northeasterly angle, I planted the iron posts furnished by the Department for the purpose. These posts were marked with the name of the Township or Townships adjoining, and in each case placed with the name facing the township of that name, as instructed.

The position of each of the other boundary posts was found, but in some instances the post was decayed and fallen. Such were replaced by new

ones, and new bearing trees were taken as set forth in the field notes of the survey.

As long sights could be had on the boundaries they were used as base lines from which I turned off angles and carried on the work of survey.

The surface of the township is somewhat uneven, being rolling or hilly in parts, while other portions are more level, but cut with numerous deep gullies or ravines.

The character of the soil is pretty generally a light sand, a considerable area being rather shallow in depth. There are some stretches, however, of fair clay or loamy soil, particularly in the northerly and northwesterly part of the township, but these are not very extensive. While there is not a great proportion of rocky surface there are numerous rocky exposures.

The township is well watered with the south branch of the Blanche River, besides numerous spring creeks and several lakelets.

The south branch of the Blanche River enters the township from the north on lot number ten, and while its general direction is comparatively straight, its course is very sinuous to lot one in the first concession, where it expands into Kushog Lake and leaves the township near the southeasterly angle. The river is about seventy-five links wide on entering the township, and the width increases to about one chain fifty links before entering the lake. The banks are from eight to ten feet high, and the water varies in depth. The current is swift through the upper part and moderate to sluggish through the lower part of the township. Above the front of the third concession it is much obstructed with driftwood and is not canoeable in its present condition. Below this there are some four or five driftwood jams.

The township is for the most part green. There is, however, a burnt tract of one thousand two hundred or one thousand five hundred acres in the southeasterly part, on which there is practically no timber, and one or two small patches of brule in other parts.

There is a considerable quantity of spruce, balsam, tamarac and pitch pine from eight to twelve inches in diameter in the fourth, fifth and sixth concessions, and to this might be added some cedar of larger size along the river.

About two-thirds of the township, however, is covered with small pitch pine and spruce, mixed in places with poplar, birch and alders.

In general the township can hardly be considered well adapted for cultivation, although it may in time become valuable for grazing purposes.

There is a considerable quantity of good timber that could readily be put in the river.

Very little indication of mineral was noted.

Moose, caribou, red deer and bears are plentiful in the locality.

I have the honor to be, sir,

Your obedient servant,

(Signed) JAMES ROBERTSON,
Ontario Land Surveyor.

The Hon. E. J. Davis,
Commissioner of Crown Lands, Toronto.

(Appendix No. 27.)

SUBDIVISION SURVEY OF THE TOWNSHIP OF CANE.

District of Nipissing.

Leamington, Ont., December 30th, 1902.

Sir,—I have the honor to submit the following report of the Subdivision Survey of the Township of Cane, in the District of Nipissing, performed under instructions from your Department bearing date the tenth of July, nineteen hundred and two.

Leaving here on the twenty-fifth of August last I proceeded by rail to Mattawa, where I procured my supplies, and from there by the Canadian Pacific Railway and one of the Lumsden steamers to Haileybury, near the head of Lake Temiskaming. From there with wagons along what is known as the Government road and Gillies lumber road I proceeded to Bay Lake, an expansion of the Montreal River, thence with canoes through this lake and up the river to Indian Lake, another expansion of the river. From there I ran a line northeasterly through the forest until I reached the west boundary of the Township of Henwood, which is identical with the east boundary of Cane, and proceeding along this line and the boundary I arrived at the starting point of my survey.

I commenced my survey at the southeast angle of the township as directed in my instructions at a tamarac post which I found standing to mark the southwest angle of the Township of Henwood, marked on the north side, concession one, and on the east side, lot twelve. Alongside of this post I planted firmly in the ground one of the iron posts furnished me by the Department, cutting the word "Henwood" on the northeast face and Cane, lot one, concession one, on the northwest face of each of these posts, and from these posts I ran a line due west astronomically a distance of six miles for the south boundary of the township, planting the lot posts thereon at regular distances of forty chains apart to mark the front angles of the lots in the first concession. At the end of the sixth mile I planted a spruce post and one of the iron posts supplied me, cutting the word Cane and lot twelve, concession one, on the northeast face of each to mark the southwest angle of the township. The lot lines between lots two and three, four and five, etc., or each alternate lot line, were run from these posts north astronomically, and from each of the posts planted at regular intervals of eighty chains apart from the southeast angle of the township, north along the east boundary of the township, the concession lines were run due west astronomically for the front of the several concessions and the posts properly marked and planted on each line as directed. At the northeast angle of the township alongside of the pine post I found standing there I planted firmly in the ground one of the iron posts furnished me, cutting on each of these posts the name Cane, and lot one, concession six, on the side facing the township, and the name of each of the other townships adjoining on the side facing its respective township. The west boundary of the township, which was run due north astronomically, I found to strike the tamarac post standing to mark the southwest angle of the Township of Bryce, and planted alongside of this post I found an iron post, marked with the name Cane on the southeast face, Tudhope on the northwest face and Bryce on the northeast face.

All the lines run in the township were well opened out and blazed and the east and north boundaries that had been formerly run were brushed out and re-blazed.

With the exception of a few rocky outcrops in the east part of the first and second concessions the township as a whole is very level and the greater portion low, wet and swampy, making the survey very difficult to perform.

The land, however, is readily drained by means of the numerous small streams and creeks running through the township and will when drained make some of the best agricultural land of that section of the country.

The soil in general is a bluish clay and clay loam, a sand and gravelly ridge cropping out in the northeast part of the township in the sixth concession, and on lots five and six in the first, and lot five in the second concession, on which ridges there is a fine growth of fair sized pitch pine.

The township is rich in spruce and cedar of fair size suitable for pulpwood and railway ties and can be readily got out by way of the Montreal River, which enters and leaves the township in two points in the west part of the township. The other woods are dead tamarac, poplar, birch, balsam and pitch pine of fair size and very dense in places, with alders thickly intermixed in many parts. A few scattering white pine were seen near the west boundary of the township in the third and fourth concessions.

No indications of minerals were found in the township and the disturbance of the magnetic needle was but slight during the survey. The general character of the rock formation is grey granite or gneiss.

The township is fairly well watered by a number of large creeks and their tributaries in the east and the Montreal River in the west.

Wabis Creek enters and leaves the township on lot number one in the first concession, and another large creek which is a tributary of the Blanche River, enters the township on lot number five in the first concession and flows northeasterly, leaving the township on lot number one in the fourth concession, re-entering and leaving the township on lot number one in the fifth concession.

The township, as will be seen by the plan, contains, only three small lakes of an area varying from sixteen to one hundred and seventeen acres.

A number of moose and beaver were seen during the progress of the survey. Wolves were frequently heard and from the indications these animals and bears are very numerous in the township.

The average variation of the magnetic needle was eight degrees thirty minutes west.

No settlers were found in the township.

Accompanying this report will be found a plan of the township and field notes of the survey, with accounts, all of which will, I trust, be found satisfactory.

I have the honor to be, sir,

Your obedient servant,

(Signed) ALEX. BAIRD,
Ontario Land Surveyor.

The Hon. E. J. Davis,
Commissioner of Crown Lands, Toronto, Ont.

(Appendix No. 28.)

SURVEY OF THE TOWNSHIP OF LUNDY.

District of Nipissing.

Alvinston, Ont., December 30, 1902.

Sir,—I have to report that in accordance with instructions issued from the Survey Branch of your Department and bearing date the tenth day of July, nineteen hundred and two, I proceeded to the Township of Lundy, in the District of Nipissing, northwest of Lake Temiskaming, on the eighteenth day of August last to survey this township into lots of three hundred and twenty acres each and in accordance with the said instructions.

This township is situate west of the Township of Hudson, and is also situate south of the Township of Henwood. On the west and south it is bounded by the unsurveyed lands of the Crown.

Owing to cloudiness it was impossible to get an astronomical observation and after cutting out the east boundary in the first and second concessions, I proceeded to run the south boundary by angular measurement as far as Lake LeMoyne, and finding it particularly rough for chainage measurement, I observed Polaris at its eastern elongation at the line between the second and third concessions and ran west one hundred and thirty chains, when I again repeated the observation and at one hundred and sixty chains west turned south to the south boundary and then west to the west boundary, checking the line by the same observation at one hundred and sixty chains from the west boundary, and finding it correct, turned north at the west boundary and ran north to the north boundary, and finding pickets standing on the south boundary of Cane, checked the angle and found it correct within one minute. Finding that this boundary line did not strike the post which marks the southeasterly angle of Cane and the southwesterly angle of Hudson, I then ran a blazed line from the line between concessions three and four, so as to strike the said post (having left the trial line unblazed through the fifth and sixth concessions). I also ran the line between concessions three and four from the east boundary with transit to the west boundary. I proceeded in the usual manner to lay off the township into lots as per instructions, producing with transit the line (obtained astronomically) of lots four and five, and left the township on the thirty-first day of October, nineteen hundred and two.

This township is situate immediately west of the admirable clay belt which stretches to Lake Temiskaming, but with the exception of a few lots at the northeast corner and two at the southwest, not much of the territory can be considered good agricultural land. The land is, as a rule, rocky or stony, with a light covering of soil. Some parts consist of good clay land, but the areas of such are small.

The land below the fourth concession may be considered as the rougher portion, the southern part being particularly rough.

The timber map may be taken also as to division of soil and country. The northwesterly portion of the township consists chiefly of rock, with little soil, and muskeg. The central portion has somewhat more soil, but is rocky and stony, while the eastern portions have a little less soil than the central portion and is more stony than rocky.

The timber is not large, and of no great value, and there is no portion which might be set apart for lumbering purposes. The sizes run from four

to ten or twelve inches in diameter and the timber might be used for railway ties.

A great fire has in time past swept over this territory, and upturned trees have embedded in the roots charred timber.

A singular feature in the physical formation is the underground creeks found running under wide bed of boulders and breaking to the surface in places.

The rock formation of this country is as a rule grey country rock, and under the thin covering of soil and where fire has probably over run the surface is broken into small pieces. No minerals were found.

The best means of access to this township would be to produce west the roads now constructed in the fourth concession and fifth concession of the Township of Hudson, entering Lundy in the fifth concession or possibly the third. This would afford access to the best land.

Large game is abundant in this township, moose and red deer being plentiful and beavers exist in considerable numbers. Small game is also plentiful, namely, partridge, duck, etc., and fish, chiefly mountain trout are to be had in the lakes.

It might be added that Indians from Montreal River report the country to be rougher and rocky to the west of this township.

All of which is respectfully submitted.

I have the honor to be, sir,

Your obedient servant,

(Signed) A. S. CODE,
Ontario Land Surveyor.

The Hon. E. J. Davis,
Commissioner of Crown Lands, Toronto, Ont.

(Appendix No. 29.)

SURVEY OF THE TOWNSHIP OF TUDHOPE.

District of Nipissing.

Sudbury, Ont., December 23rd, 1902.

Sir,—I have the honor to submit the following report on the survey of the Township of Tudhope, in the District of Nipissing, performed under your instructions, dated July tenth, nineteen hundred and two.

Leaving Sudbury on July eighteenth, the party proceeded by Canadian Pacific Railway to Temiskaming Station, thence by steamer to Haileybury, and via Bay Lake and Montreal River to a small creek about midway between the first and second rapids below Mountain Lake. From this point a trail was cut into the southwest corner of the Township of Bryce, this corner being the southeast corner of the Township of Tudhope and the starting point of the survey according to instructions. This point was found to be only about one and one-quarter miles from the Montreal River.

An observation of Polaris for azimuth was taken here on July twenty-fifth, using an assumed latitude of forty-seven degrees forty-two minutes. As soon as the weather permitted, namely, on August third, an observa-

tion of the sun was taken, and the latitude of the south boundary of the township found to be forty-seven degrees fifty-four minutes.

The south boundary was run due west astronomically from the southwest corner of Bryce, six miles, and the north boundary due west astronomically from the northwest corner of Bryce.

The concession lines were started in every case from the original mile posts planted by Ontario Land Surveyor Niven.

The survey was completed in the usual manner, frequent observations for azimuth being taken, and iron posts planted at all four corners of the township as directed.

Almost the whole township is heavily timbered, only small portions along the north and east boundaries having been burnt, in all about one thousand five hundred acres.

The southeasterly portion of the township is largely swampy, containing large spruce and tamarac. A much larger percentage of the latter timber was found alive here than in any other district visited by the writer in recent years.

The higher and rockier portions of the surface are well timbered with large spruce, jack-pine, balsam and birch, the two former varieties frequently attaining a diameter of thirty inches. Some very large poplar occurs also in the vicinity of Elk Lake. In fact, the township as a whole is one of the best pulpwood areas the writer has seen. No white or red pine of value occurs in the township; merely a few scattered trees.

The surface of the township is partly broken and rocky, with the balance mostly swampy clay flats, with some rolling clay land. The rocky portion follows largely the line of the divide between the Montreal and Blanche Rivers, and covers approximately forty-five per cent. of the surface.

The southeasterly portion of the township, shown as swamp on the plan, would make excellent farm land when cleared and drained. Some very fine rolling clay land occurs along the Elk Lake and the Montreal River. About forty per cent. of the total area of the township may be called "good" agricultural land, and a further fifteen per cent. "fair."

The township is fairly well watered with small streams, almost all of which take their rise within the township.

The Montreal River, passing through the southwest corner, gives easy access to the township. Small steamers could run from the "Pork Rapids" to within about two miles of the southeast corner, that is, to the second small rapid below Mountain Lake.

A waterpower of sufficient magnitude to operate a grist or saw mill could be developed on the Montreal River immediately south of the township.

Signs of game were plentiful. Fresh beaver work was also noticed in several places

The rock formation of the township is chiefly Huronian, consisting of schists with intrusions of diorite on the south and east boundaries, and a considerable area of quartzite conglomerate in the south and of breccia in the north.

The granite rock is probably Laurentian, and is of a coarsely crystalline variety near the schist, with signs, however, of sedimentation in the northwestern part of the township.

The hills show the usual signs of glaciation.

No settlers were found in the township. A couple of small clearances have been made by the Indians on the north and south sides of the Montreal River in lot ten, concession one, but there are no buildings.

No mining locations or indications of important minerals were found.

The lake and river traverses were made with a Lugeol Micrometer.

The shores of all the small interior lakes were rocky, but those of Elk Lake and the Montreal River were of good clay land.

Herewith are submitted also a general plan, a traverse plan, a timber map (showing geology also), and field notes.

I have the honor to be, sir,

Your obedient servant,

(Signed) GEO. E. SILVESTER.
Ontario Land Surveyor.

The Hon. E. J. Davis.
Commissioner of Crown Lands, Toronto, Ont.

(Appendix No. 30.)

SURVEY OF THE TOWNSHIP OF TRUAX.

District of Nipissing.

Sudbury, Ont., December 23rd, 1902.

Sir,—I have the honor to submit the following report on the survey of the Township of Truax, in the District of Nipissing, performed under your instructions dated July tenth, nineteen hundred and two.

The survey was carried on in connection with the survey of the Township of Tudhope, which lies immediately to the south of this township, and the north boundary of which forms the south boundary of Truax.

The concession lines were run in every case from the original mile posts planted by O. L. S. Niven. The northwest angle coincides with the southwest angle of the Township of Sharpe. The balance of the survey was completed in the usual manner, observations for azimuth being taken when weather permitted.

An iron post was planted at the northeast angle, and the iron post planted at the northwest angle by O. L. S. Robertson marked as instructed.

The greater part of the eastern and northern portions of the township is brule, probably about fifteen to twenty years old, and covered with small second growth poplar, birch, jack-pine and spruce, the two latter varieties predominating in the southeasterly portion and on sandy soil, and the poplar and birch in the northerly portion.

The balance of the township is green and heavily timbered with spruce, jack-pine, balsam, poplar and birch. Small, detached areas of green timber occur in the burnt portion.

The easterly portion of the township is very rough, rocky and broken, while the westerly portion is chiefly a large clay valley deeply scored by numerous ravines running down to the various tributaries of Driftwood Creek. A portion of lots three and four, concessions one and two, is sandy with gravel hills.

In all, about thirty-five per cent. of the area of the township, chiefly in the valleys of Driftwood and Tamarac Creeks, is good agricultural land. A further ten per cent., chiefly in smaller detached patches, might be described as fair land.

The township has practically no water except Driftwood and Tamarac Creeks and Long Lake, an expansion of the south branch of the Blanche River.

The general elevation of the country is about two hundred feet above Long Lake, and one hundred to one hundred and fifty above Driftwood Creek.

The rock formation is Laurentian, and consists of basic granite, showing gradations to gneissoid formations toward the north and east.

A small area of Huronian breccia occurs along the south boundary in lots eight to eleven.

Signs of large game were numerous.

No settlers were living in the township. Small clearings were found, however, on Long Lake, on lot one, concession five, and lot two, concession six, the former having a small cabin partly constructed. No information could be obtained as to the names of the parties who had made these improvements.

No mining claims or indications of valuable minerals were found.

The survey was completed on October the fifteenth, and the party returned via Montreal River, Bay Lake and Haileybury, reaching Sudbury on October the twenty-second.

Herewith are submitted also a general plan, a traverse plan, a timber map (showing geology) and field notes.

I have the honor to be, sir,

Your obedient servant,

(Signed) GEORGE E. SILVESTER,
Ontario Land Surveyor.

The Hon. E. J. Davis,
Commissioner of Crown Lands, Toronto, Ont.

(Appendix No. 31.)

RESURVEY OF TOWNSHIPS OF SHENSTON AND TAIT.

District of Rainy River.

Fort Frances, March 8th, 1902.

Sir,—I have the honor to submit the following report on the resurvey of the Townships of Shenston and Tait in the District of Rainy River, performed under instructions from your Department, dated October the fifth, nineteen hundred and one.

My instructions in general terms were to retrace, reblaze and repost the lines of survey made in the year eighteen hundred and seventy-six by Elihu Stewart, O. L. S.

I commenced work at the southeast angle of the Township of Shenston, running west to an Indian Reserve, and finding all the original posts in their correct positions. Starting from these posts I proceeded with the resurvey and had no difficulty in rerunning the lines in the southerly three tiers of sections as the original lines could be found in places by blazes and old cutting, although the lines themselves were completely grown up. I found original posts or bearing trees at every section corner in these

three tiers with the exception of section fourteen northeast angle, several quarter section posts or bearing trees were also found. From the southeast angle of section twenty-three I found that the east boundary of section twenty-three, twenty-six and thirty-five was wrong, and so reported to your Department, receiving in reply instructions dated January the third, nineteen hundred and two, which instructions I followed, joining up original posts at the quarter section to original bearing tree or rather to position of original posts indicated by bearing trees at the section corners.

I found no further difficulty until I came to the east boundary of section twenty-nine and thirty-two, where the production of the two lines from north and south did not intersect. Here I joined up the nearest original blazes on either side of the north boundary of section twenty-nine and intersected this line with the north boundary of section twenty-eight and twenty-nine as established by running from original post at northeast angle of section twenty-eight to original blazes on northeast quarter of section twenty-nine.

Again on the east boundary of section thirty and thirty-one I had to join up original blazed line on east boundary of northeast quarter of section thirty-one to original post at southeast angle of section thirty. I then intersected this line with line run from post established by chainage between original post at southwest angle of section thirty and original post at township corner, to original blazes on northeast quarter of section twenty-nine.

I have shown on plan the names of all settlers I could find; there are a few more on the township, but I could not locate them owing to their absence.

The whole of this township with the exception of the northeast quarter of section twenty-nine and northwest quarter of section thirty is good land and fit for cultivation. Parts of sections twenty-four, twenty-five, twenty-six, thirty-five and thirty-six are muskeg, but this could be easily drained.

The entire township has been repeatedly burnt. The northwest portion, locally known as "The Klondyke," is bare except for willows and underbrush, and has been exceptionally easily cleared, many of the settlers having large clearings covering nearly the whole of their homestead.

I found no difficulty in making the resurvey of the Township of Tait.

Original posts or bearing trees were found at all section corners in the interior of the township except in three cases, namely, the northeast corners of sections eight, fifteen and sixteen. While enough originals were found on the boundaries to enable those missing to be established by chainage as directed by statute.

In addition to the posts at section corners, many of the original posts at the quarter sections were also found.

The whole of this township with the exception of the northwest portion has been repeatedly burnt. The central portion viewed from a hill top appears almost like prairie, but a close examination shows that the land is covered with a dense growth of red willow and underbrush. Many of the swamps shown in Mr. Stewart's notes were seemingly caused by beaver dams on the creeks and have now disappeared. What were cedar swamps in the year eighteen hundred and seventy-six are now groves of second growth poplar, and tamarac muskegs are now excellent hay meadows.

The northwesterly portion of the township contains much good land. That along the banks of both branches of Pine River is of the very best and swamps are easily drainable into Pine River.

The west boundary of the township runs through a valuable bunch of pine. I estimate from one-half to three-quarters of a million feet on section nineteen in Tait and section twenty-four in Patullo.

A few settlers' names only appear on the plan. There are in reality more, but I could not locate them in their absence. There are, I understand, no less than six settlers of the name of McKay, each holding a quarter section. They were all out at work in the lumber camp and I could not locate them.

As a general opinion I would say that this township is the best I have yet seen along Rainy River, good land, well watered and easily cleared, with a road running from angle to angle giving communication with railroad and river at all seasons of the year.

Owing to the abundance of work in this section during the completion of the Canadian Northern Railroad, labor was very scarce and wages high. Further resurveys of this kind should consequently be done much more cheaply than was possible during last fall.

Plans, field notes, original fields notes and accounts accompany this report.

I have the honor to be, sir,

Your obedient servant,

(Signed) D. J. GILLON.
Ontario Land Surveyor.

The Honorable, The Commissioner of Crown Lands,
Toronto, Ont.

(Appendix No. 32.)

TOWNSHIP OF MELICK.

District of Rainy River.

Rat Portage, October 31st, 1902.

Sir.—I have the honor to report that in accordance with instructions dated the 18th day of July, 1902, I have performed the survey of the Township of Melick in the District of Rainy River.

This township is bounded on the south by the Township of Jaffray, on the west by the Winnipeg River and Indian Reserve 38 C. and on the north and east by the unsurveyed lands of the Crown.

The survey was commenced from the southeast angle by producing the east boundary of Jaffray across Black Sturgeon Lake, and fixing the distance of the theoretical corner from the water's edge of the said north shore of Black Sturgeon Lake by triangulation. Having thus obtained the starting point an observation was made on Polaris, and the azimuth of the east boundary of Jaffray found to be within one minute of true north and south. The east boundary of Melick was then produced north from this point, and the survey of the township carried west from this line, observations being made from time to time as the work progressed, to correct any errors of azimuth.

An iron post marked Melick on the northwest side was planted on the east boundary near the water's edge of Black Sturgeon Lake and a large wooden post beside it in a stone mound : another iron post marked "Melick" on the southwest side was planted one chain from the water's edge

of Deacon Lake, on the east boundary near the northeast angle : another iron post was planted at the northeast angle of Indian Reserve 38 C, marked "I.R." on the west side and "Melick" on the east side: another iron post was planted at the northwest angle of Jaffray Township marked "Jaffray" on the southeast side and "Melick" on the northeast side, and another iron post was planted beside the old post on the north boundary of Jaffray at its eastern extremeity, marked "Jaffray" on the southwest side and "Melick" on the northwest side; all as directed.

Black Sturgeon Lake runs through the township, dividing it into two portions. Practically all that portion of the township lying north and east of Black Sturgeon Lake is covered with green timber, spruce, tamarac, poplar, jack-pine, birch and balsam, some very good timber, while almost the whole of the portion of the township west of the lake has been burned over, and the wood is practically all dead, while much of this area is entirely denuded of timber.

It would seem advisable to have this dead timber cut and removed as soon as possible even if a much lower price was got for it from wood-cutters and settlers than for green timber as it is now sound enough for fuel, but will soon decay and is at present a menace to the green timber through its liability at any time to cause a very destructive fire. Here, as in so many other places, the evidence is abundant of the enormous loss that is annually sustained through forest fires, and the great need of every inhabitant of the country doing his utmost to prevent these wholesale devastations of the natural wealth of the Province.

A good percentage of the area of this township, possibly forty per cent. is suitable for agriculture, some very fertile valleys well watered : and some very good hay meadows might be made in the flats with little labor.

There are no water powers in the township of any consequence.

All the ordinary kinds of fish are found in the lake, and game animals particularly moose and caribou are very plentiful. Fur-bearing animals and partridges seem singularly scarce.

The geological formation is chiefly Laurentian granite, and no mineral deposits of any value were discovered during the survey.

Herewith are enclosed general plan, timber plan, traverse plan and field notes, with accounts, etc., in triplicate.

I have the honor to be, sir,

Your obedient servant,

(Signed) THOS. R. DEACON,
Ontario Land Surveyor.

Hon. E. J. Davis,

Commissioner of Crown Lands,
Parliament Buildings, Toronto.

(Appendix No. 33.)

RESURVEY OF PART OF THE TOWNSHIP OF McGREGOR.

District of Thunder Bay.

Port Arthur, June 30th, 1902.

Sir,—I have the honor to report that in accordance with your instructions dated May the ninth, nineteen hundred and two, I have completed the resurvey of part of the township of McGregor, so far as the expenditure authorized would admit of. The original lines were extremely difficult to follow when found, owing to the timber having been burnt, and a very thick growth of birch, balsam and poplar having since grown up, also the bearings of some of these lines were from twenty degrees to thirty degrees out and in some cases the lines were run from each end making jogs, in one case as much as eight chains, from these causes about one-third of my time was spent looking for the original lines. Remains of the original posts were found in most cases. When not found I was able to locate their place by bearing trees and intersection of lines.

I planted iron posts properly marked alongside wooden ones as follows, namely, southwest corner section seventeen, concession A, southwest corner section fourteen, concession A, northwest corner section sixteen concession A, northeast corner section fourteen concession A, northwest corner section sixteen, concession one, northeast corner section fourteen, concession one, northwest corner section fifteen, concession two, northeast corner section fourteen, concession two, northwest corner section sixteen, concession three, northeast corner section fifteen, concession three: large wooden posts were planted at all corners, the one-half mile ones marked one-quarter section, and the others with section and concession numbers. As the appropriation was limited I did not trace the lines over useless land more than I could avoid.

The greater part of the land I went over was good clay and sandy loam, with occasional rock ridges, and well watered.

The following is a description of the sections:

Section fifteen, concession A, clay, with rock ridges, small timber.

Section sixteen, concession A, clay, small timber.

Section seventeen, concession A, clay, some gravel, large timber.

Section sixteen, concession one, clay, some gravel, large timber.

Section fifteen, concession one, clay, partly burnt, some large timber.

Section fourteen, concession one, mostly rock, large timber.

Section sixteen, concession two, clay and sandy loam, large timber.

Section fifteen, concession two, clay and sandy loam, large timber.

Section fourteen, concession two, west half, clay and sandy loam, east half, rock, small timber.

Section sixteen, concession three, clay, sandy loam, second growth timber.

Section fifteen, concession three, clay, sandy loam, second growth timber.

Section fourteen, concession three, west half, clay, sandy loam, east half, rock, small timber.

I herewith enclose returns. Account, pay list, vouchers, field notes and plan, diary.

I have the honor to be, sir,

Your obedient servant,

(Signed) A. H. MACDOUGALL,
Ontario Land Surveyor.

Hon. E. J. Davis.
Commissioner of Crown Lands, Toronto, Ont.

(Appendix No. 34.)

TOWNSHIP OF AMES.

District of Thunder Bay.

Port Arthur, Nov. 29th, 1902.

Sir.—I have the honor to report that in accordance with your instructions dated 25th July, 1902, I have completed the survey of the Township of Ames.

I commenced the survey on the north boundary of the Township of Moss at the northwest corner of mining location forty-two B, when I planted a wooden post with an iron bar along side marked Ames on the northeast, in a stone mound, as the country has been burned over I could not find the post at this corner, but established the point by tracing the north boundary of Moss and the west boundary of forty-two B to their intersection. I took an observation on eastern elongation of Polaris and found the bearing of the north boundary of Moss to be south eighty-eight degrees, twenty minutes east. I then traced this line east two miles to a small lake in which the northeast corner of Moss falls. I traced the east boundary of Moss north to this lake. I took an astronomical observation at the intersection of the north boundary of Moss and west side of lake, and ran due east to the southeast corner of Ames where I planted an iron bar marked Ames on northwest along side a wooden post; taking an observation on Polaris here I ran due north to the northeast angle, planting posts for the front of the several concessions, where I planted an iron bar marked Ames on southwest side along side a wooden post in a stone mound, from this point I ran, taking frequent observations the several side and concession lines due north and west respectively, dividing the township into lots of three hundred and twenty acres or thereabouts as instructed, posts of the best available timber properly marked were planted at all front angles of lots, and all lines were well opened and blazed where there was timber.

The Township is very rough, and rocky, and of but little use, for farming purposes, there being very little arable land. Fire has run over nearly all the country, killing the timber, which has since fallen, and among which is a thick growth of small jack pine, from six to ten feet high has grown up.

There are a large number of mostly small lakes scattered through the township, no water falls or navigable streams were found. What little green timber found is only fit for firewood.

The Canadian Northern Railway runs across the Northeast corner for two and a half miles.

I have the honor to be, sir,

Your obedient servant,

(Signed) A. H. MACDOUGALL.

Hon. E. J. Davis,
Commissioner of Crown Lands, Toronto.

(Appendix No. 35.)

SURVEY OF ISLANDS, GEORGIAN BAY.

Toronto, December 11th, 1902.

Sir,—As directed by you in your letter of the sixteenth of July, nineteen hundred and two, containing instructions for a continuation or completion of the work done by me during preceding years in the way of establishing points on certain islands, thus forming a main traverse line or base line, from Moose deer Point to Twin Island, and from Point Aux Baril eastward to Grave Island, I beg to say, that I have, in accordance with said directions, surveyed the connecting link between Twin Island and Grave Island, all of which is clearly shown on the accompanying plan, as well as all the data of the various triangles used in the triangulations connecting these points.

There is now a complete base line or main traverse line, extending the entire distance from Moose Deer Point to Point Aux Baril, having every main station well defined by posts firmly planted in mounds of stones, and in as well sheltered spots as the natural conditions of the islands would permit of.

That the work is of great utility has been already clearly demonstrated by the number of islands that have been located by connection with said traverse line, and the number is constantly increasing, and a very large number have been surveyed in various parts of the bay during the past season, plans of which will be forwarded to the department in due course.

I have the honor to be, sir,

Your obedient servant,

(Signed) J. G. SING.
Ontario Land Surveyor.

The Hon. E. J. Davis,
Commissioner of Crown Lands, Toronto.

(Appendix No. 36.)

RONDEAU PROVINCIAL PARK.

Morpeth P.O., Jan. 8th, 1903.

To the Honorable Commissioner of Crown Lands :

Sir, I have the honor to submit this my report as caretaker and ranger of the Rondeau Provincial Park for the year 1902.

The Government has made some very much-needed improvements during the past year, which are as follows : under-brushing, logging and cleaning up fifteen acres of bush, to be added to the old picnic grounds. Then a first-class road has been built, from the town line of Howard and Harwich to the park picnic grounds, which is about one mile in length. The road bed was first graded and levelled, then clay was drawn from the nearest farms where it could be obtained and was put on 26 feet wide and 8 inches thick in the centre, tapering to 4 inches at the outer edges; then there was gravel put on top of the clay 15 feet wide, 7 inches

thick in the centre, tapering to three inches at the outer edges, which makes an excellent road and looks like a city boulevard. This gravel had to be drawn over four miles; the weather was very wet and broken during the time the road was being built, which made the work cost more than it would have done had the season been dry.

There was also an excellent horse shed built. 112 feet long by 24 feet wide, with close feed-boxes for hay and oats. Horses and carriages may be driven into this shed and be safe from rainstorms, which is a great comfort and pleasure to picnickers. It is well painted, both on roof and sides, and is ornamental as well as useful, being fully appreciated by the visitors that come to the park.

The paint on the large pavilion was becoming dull and faded. This was renewed and looks bright and attractive again. All the park now lacks is a good public house, call it a club house or what you will, so that strangers coming from a distance can have a place to stop for a few days, weeks or months. Many are willing to pay high prices if they can get board and lodging. We have visitors here from Cleveland, Toledo, Detroit and many Canadian cities, who are loath to leave the place. If there was such accommodation here, it would be but a short time until we would have an electric road running to the park.

There are not less than thirteen deer running at large in the park bush, besides those in the enclosure for the public to see and admire. Many of the young people have never seen a deer until they come here. The little spotted fawns are very attractive.

This has been a very hard season on young game birds and turkeys, the spring was so cold and wet and stormy. However, we managed to raise about 150 young pheasants, but we lost a great many while they were very young. We have five different kinds of pheasants now, the English Ring-neck, Mongolian, Golden, Silver and Lady Amherst. After shipping a few birds away and turning a good many out into the bush on the park and about forty being killed by vermin, we still have about 100 birds, old and young, in the pens.

The native partridge and black squirrels are very numerous, and the grey squirrels sent here from the Smithsonian Institute at Washington, D.C., are doing nicely.

I am sorry to report a bad washout that has taken place in the bar which runs from the southerly point of the park bush to the piers, extending down about fifteen rods along the head of the bush land, and uprooting several large trees at the end of the bush. This has taken place in the last three months. We have had some very heavy storms from the east, southeast and south, which have done the damage. I do not think anything could be done with it at present, as the ground is hard frozen now, and the ice will wash up there probably eight to ten feet deep during the winter, and it may not washout much more until the frost is all out. Then there should be a good engineer sent to view the situation that he may suggest some way to prevent further washing out.

I have the honor to be, sir,

Your obedient servant,

(Signed) ISAAC GARDINER.

(Appendix No. 37.)

ALGONQUIN NATIONAL PARK OF ONTARIO.

Cache Lake, Mowat P.O., January 22nd, 1903.

The Honorable, The Commissioner of Crown Lands.

Honorable Sir,—I beg to hand you a report of the work performed, etc., for the year 1902 by the Algonquin Park staff.

As you are aware, the staff for the past year has been composed of ten rangers and myself. The time of the staff during the trapping season is, of course, taken up by patrolling the different sections allotted to them. This work has been to a great extent successful as is evident by the wonderful amount of game and fur-bearing animals of all kinds to be found throughout the park. During the interval between the trapping seasons the time of the staff is employed cutting out portages, building shelter houses, making canoes, snowshoes, sleighs, etc., etc. During the past year the portages have been cut out afresh and improved from White Fish Lake to Great Opeongo, thence to Crow Lake, Crow River to Lake Lavieille. The last portage to Great Opeongo is entirely new, about three miles in length and almost level. On the west side the portages have all been improved from Rainy Lake to South River, and shelter houses repaired.

On the north, portages were cut along the Petawawa River from Narrow Lake to Cedar Lake, passing several rapids and splendid trout pools, also from Mink Lake to Maple Lake, thence down Maple Creek to Manitou Lake. A new shelter house has been built on Great Opeongo on a beautiful site near the narrows. The building is larger and much better than any built before, the logs are hewn and a first-class building put up, this being one of the most important lakes in the park. Game of all kinds, also fur-bearing animals, especially beaver and otter, have increased wonderfully. I made several trips through the park last year, the longest being from Eau Claire on the C.P.R. to Rainy Lake on the C.A.Ry. The trip took us twenty-two days, and was a complete success. Deer came to the water's edge and calmly watched us as we paddled along. This occurred on several occasions, as many as six being sighted in one lot, and none of them fifty yards from us. Fresh beaver work was found in abundance everywhere, and fur-bearing animals of all kinds were in evidence wherever we went. Fresh moose trails could be seen crossing the portages in all sections, and I had the pleasure of closely inspecting some very fine specimens of this king of our northern forests.

We visited numerous side streams and lakes on our way through. A great many of the portages throughout the park have been measured, and notices have been put up at each end of the portages stating name of lake, route, length of portage, etc. These notices are fastened to trees at the water's edge, and are in zinc frames with glass fronts. I hope during the present year to have this work completed all over the park.

A great deal has been done to improve head-quarters. A plank walk has been built from the houses to the railway track, also a platform at the track. Over one hundred trees have been planted, principally sugar maple. Stumping and levelling has been done as far as time would permit. There has, of course, been the same routine of sleigh, snowshoe and canoe making, cutting wood, storing ice, etc. Galvanized iron boxes have been provided for the blankets and provisions in all the principal shelter houses.

It is gratifying to note that we have had very few cases of trapping during the past year, and I trust it will continue to decrease. We want the co-operation of the lumbermen in this matter. They can through their foremen and agents do a great deal to lessen the amount of trapping done.

Visitors to the park during the past year were far in excess of any former year. I issued in all three hundred fishing permits, many of these representing parties from two to eight. All expressed themselves as being delighted with the park.

The black bass introduced into several of the lakes three years ago have multiplied wonderfully, and abundantly stocked the lakes and streams into which they have access.

Our deer, caribou, raccoons, Belgian hares, etc., are doing nicely, also the black squirrels sent last fall from Rondeau Park.

I am, sir,

Your obedient servant,

(Signed) G. W. BARTLETT,
Park Superintendent.

(Appendix No. 38.)

List of persons holding Cullers' Licenses issued under the Ontario Cullers Act up to 31st December, 1902.

Name.	P.O. Address.	Name.	P.O. Address.
Anderson, M. M	Almonte.	Bick, Thomas	Bobcaygeon.
Allan, James D	Bracebridge.	Burke, John Thomas	Midland.
Appleton, Erwin B	Bracebridge.	Benson, John Bird	Midland.
Albert, Andrew	Ottawa.	Brennan, Richard Lawrence	Peterborough.
Adams, J. Q	Longford Mills.	Brown, Hugh Risside	Huntsville.
Anderson, Patrick J	Campbellford.	Bryan, Frank	Keewatin.
Anderson, J. C	Gravenhurst.	Bennett, Edward Clinton	Ahmic Harbour.
Allan, Alfred	Ottawa.	Blaine, Harvie Thomas	Orillia.
Allen, R. A	Bannockburn.	Borrett, Thomas	Barrie.
Aikens, Geo. M	French River.	Bickell, James Manuel	Sault Ste. Marie.
Appleby, Ridley	Katrine.	Buisson, William	Sudbury.
Adams, James M	Sault Ste. Marie.	Borrett James A	Sault Ste. Marie.
Aylward, James	Peterborough.	Bliss, C. Liddon	Sudbury.
Archibald, John L	Keewatin.	Bray, James	Kinmount.
Austin, Wm. G	Renfrew.	Bremner, Geo	Arnprior.
Anderson, Charles	Little Current.	Bromley, Samuel	Pembroke.
Anderson, John	Cartier.	Brown, A. C	Fitzroy Harbor.
Adair, Thomas Albert	Gananoque.	Berlinquet, Julius	Opimicon, Que.
Anderson, J. G	Alpena, Mich.	Blastorah, Fred L	Harwood.
Alexander, Samuel	Arden.	Burns, Clifton H	Little Current.
Adams, Wm	Westmeath.	Beaumont, Ernest	Parry Sound.
Arkle, George	Rat Portage.	Beattie, Alex	Whitney.
Armstrong, James Theodore	McKellar.	Brennan, Reginald	Gravenhurst.
Armstrong, Thos. J	Arnprior.	Boyd, Geo	Gravenhurst.
Acheson, Ira M	Westmeath.	Bissell, George Thomas	Trenton.
Albert, Alfred E	Ottawa.	Baxter, Richard	Deseronto.
		Breeaugh, Edward	Deseronto.
Brophy, Michael Patrick	Massey Station.	Boyd, George A	Thessalon.
Boland, Abraham	Cartier.	Buchan, Frederick	Arnprior.
Brown, Singleton	Bracebridge.	Barret, Patrick	Arnprior.
Barry, Thomas James	Hastings.	Brundage, Alfred W	Pembroke.
Blanchet, Paul Frederick	Ottawa.	Brougham, Thomas	Eganville.
Bird, W. S	Parry Sound.	Blair, Robert I	Arnprior.
Bayley, James T	Gravenhurst.	Benson, John W	Sturgeon Bay.
Bell, Henry	Ottawa.	Beck, Charles M., Jr	Penetanguishene.
Beach, Herbert Mahlom	Ottawa.	Beatty, W. J	Coldwater.
Barry, Thomas	Millbridge.	Burns, C. W., Jr	South River.
Beatty, W. R	Parry Sound.	Bell, John Henry	Burk's Falls.
Brooks, Frederick William	Mackey's Station.	Bettes, John Hiram	Muskoka Mills.
Brown, Robert D	Port Sidney.	Brady, John	Renfrew.
Breed, Arthur G	Penetanguishene.	Beattie, W. J	Arnprior.
Barnes, Thomas George Lee	Muskoka Mills.	Bromley, William	Westmeath.
Buchanan, Robert	Coldwater.	Bissell, Hartie	Trenton.
Beck, Jacob Frederick	Penetanguishene.	Brown, Robert	Starrat.
Bird, Joseph Manly	Muskoka Mills.	Beaton, Hugh	Waubaushene.
Boyd, John F	Thessalon.	Bailey, Arthur	Parry Sound.
Brandon, Martin W	Peterborough.	Burd, James Henry	Parry Sound.
Bell, John C	Peterborough.	Bailey, Samuel James	Orillia.
Bartlett, George W	Warren.	Burton, Tinswood	Renfrew.
Brown, Silas	Klock's Mills.	Boyes, James	Huntsville.
Boland, W. G	Eganville.	Brown, John	Rockdale.
Baulke, George R	Aylmer, Que.	Brennan, Edward Scott	Sundridge.
Bromley, Thomas	Pembroke.	Bell, John Arguey	Klock's Mills.
Bremner, John L	Admaston.	Bromley, Edw. H	Pembroke.
Bromley, W. H	Pembroke.	Bliss, Lawrence E	Byng Inlet.
Bowers, Isaac	Little Current.	Buie, Neil	Spanish Station.
Brown, Thomas	Barrie.	Brazziel, Leonard	Spanish Station.
Bass, Walter R	W. Huntingdon.	Bowie, Jas	Bryson, Que.
Bates, Robert	Rat Portage.	Barrie, Nicholas J	Ottawa.

(*Appendix No. 38.*)—*Continued.*

Name.	P.O. Address.	Name.	P.O. Address.
Campbell, Robt. John	Flinton.	Charlton, Geo. A	Collingwood.
Carpenter, John A	Arnprior.	Cahill, Thomas	Nosbonsing.
Callaghan, Dennis	Trenton.	Chew, Manley	Midland.
Campbell, Alexander J	Trenton.	Cooper, James Eddly	Saurin.
Carson, James	Bracebridge.	Cook, Reinhardt	South River.
Campbell, J. M	Bracebridge.	Crowe, Cecil	Bobcaygeon.
Campbell, Robert	Bracebridge.	Cassidy, S. C	Dunchurch.
Clairmont, Joseph	Campbellford.	Charleson, John Baptiste	Ottawa.
Clarkson, Robert J	Parry Sound.	Comer, Billa F	Tweed.
Carruthers, Aaron	Hintonburg.	Carter, George	Sundridge.
Calder, Wm. J	Burk Lake.	Corrigan, Bobt. J	Emo.
Chew, Joseph	Gravenhurst.	Caswell, Grant	Coldwater.
Cole, James Colin	Ottawa.	Caswell, Geo	Coldwater.
Cameron, William	Collins' Inlet.	Chemir, David A	Pembroke.
Cain, Robert	Midland.	Clairmont, Philadelph L	Gravenhurst.
Crawford, Stephen W	Thessalon.	Crowe, Edgerton	Bobcaygeon.
Cochrane, George	Peterborough.	Crowe, Leslie	Bobcaygeon.
Coburn, John	Lindsay.	Campbell, Duncan W	Stewartville.
Crowe, Nathaniel	Bobcaygeon.	Callaghan, Thomas M	Arnprior.
Cameron, Alexander	Norman.		
Chrysler, Frank R. L	Webwood.	Dunning, E. Percival	Parry Sound.
Callaghan, Thos., Jr	Campbellford.	Duff, R. J	Arnprior.
Carson, Hugh	Rat Portage.	Durrill, John W	Ottawa.
Calder, George	Woodville.	Dickson, John	Sundridge.
Callaghan, Dennis	Campbellford.	Dickson, Jas. L	Michipic'tenH'b'r
Corigan, Robert T	Emo.	Danter, R. W	Parry Sound.
Cameron, John H	Rat Portage.	Doyle, T. J	Eau Clare.
Carson, Melvin	Little Current.	Dobie, Alexander R	Blind River.
Cameron, John K	Spanish River.	Donally, Richard S	Sudbury.
Cassidy, William	Little Current.	Devine, William	Cook's Mills.
Coons, George Washington	Peterborough.	Durrill, William	Nosbonsing.
Chisholm, George Leopold	Sault Ste. Marie.	Draper, Patrick	Quyon, Que.
Chalmers, George James	Peterborough.	Davis, J. P	Bobcaygeon.
Caverly, David Charles	Parry Sound.	Dale, John Alexander	Birkendale.
Campbell, Archibald J	Little Current.	Dinsmore, Chas. L	Huntsville.
Close, John L	Arnprior.	Drum, Patrick	Belleville.
Carmichael, Donald	Arnprior.	Durham, Edgar S	Rossean.
Carty, John	Arnprior.	Duquette, Charles	Webbwood.
Cleary, Patrick M	Arnprior.	Davis, William Albert	Bobcaygeon.
Cuthbertson, Wm	Arnprior.	Dickson, Robert Alexander	Keene.
Carter, Robert E	Fesserton.	Dawkins, John	Gravenhurst.
Coleman, Jos	Baysville.	Doxsee, James E	Gravenhurst.
Cardiff, George McDougall	Sudbury.	Didier, L. P	Aylmer, Que.
Cameron, W. D	Rat Portage.	Devine, Patrick J	Sheenboro, Que.
Crandall, F	Port Arthur.	Dinsmore, Richard	Huntsville.
Campbell, James R	Eganville.	Dunn, Percy E	Longford Mills.
Campbell, John A	Galetta.	Duval, Chas	Halfway.
Caillier, Hyacinth	Arnprior.	Donlevy, Jas	Calabogie.
Chamberlain, Thomas	Bobcaygeon.	Doris, Patrick	Peterborough.
Cooper, David Allan	Millbrook.	Doris, John	Peterborough.
Cox, Henry	Ballerica, Que.	Donahoe, Michael	Erinsville.
Currie, James	Ottawa.	Doran, W	Belleville.
Clarkson, A. E	Midland.	Dickson, Robt. R	Kippewa, Que.
Clairmont, E	Gravenhurst.	Donlevy, Wm. C	Rockcliff.
Cameron, W. F	Sturgeon Bay.	Duff, Chas. A	Stewartville.
Connolly, Daniel	Gravenhurst.		
Campbell, P. C	Sault Ste Marie.	Emlaw, Oliver	Campbellford.
Cadenhead, Alexander	Midland.	Ebert, Andrew P	Pembroke.
Carpenter, R. J	Arnprior.	Ellis, Alexander	Arnprior.
Christie, William Pringle	Severn Bridge.	Ellis, John	Westmeath.
Campbell, C. V	Sault Ste. Marie.	Errington, Joseph	Sundridge.
Clegg, Samuel	Peterborough.	Edgington, Henry John	Parry Sound.
Clairmont, William L	Gravenhurst.	Eager, James	Parry Sound.

(Appendix No. 38.)—Continued.

Name.	P.O. Address.
Edgar, J. E.	Rat Portage.
Ferguson, Wm. H.	Red Bay.
Forbes, Christopher McKay	McLean's Depot.
Fitzgerald, E. Clair	Parry Sound.
Farrell, W. H.	Ironside, Que.
French, Lewis William	Byng Inlet.
Fraser, William A.	Mattawa.
Fortune, Owen	Trenton.
Fraser, David	Norman.
France, John	Collins' Inlet.
Ferguson, Ernest A	Baysville.
Ford, Charles	Wahnapitae.
Findlay, J. H.	Braeside.
Fraser, Jas	Renfrew.
Fairen, Francis	Peterborough.
Faulkner, Jos	Fesserton.
Fraser, Alexander, Jr	Westmeath.
Fairbairn, William	Calabogie.
Fraser, Wm. A.	Pembroke.
Fraser, Foster	Pembroke.
Fraser, William	Little Current.
Fraser, Hugh Alexander	Pembroke.
Flaherty, John	Lindsay.
Fisher, William	Trenton.
Fox, Thomas	Deseronto.
Fallis, James W	Sturgeon Bay.
Fairbairn, N. H.	Webbwood.
Friel, John	Trenton.
Fox, Charles	Trenton.
Featherstonhaugh, Wm. Henry	Penetanguishene.
Frair, Schuyler	Westmeath.
Farren, Joel	Savanne.
Fraser, Duncan	Big Forks.
Freeston, Walter	Burk's Falls.
Fraser, Jno	Bancroft.
Fitzgerald, D. C.	Spanish Station.
Foster, Wm. C	Searchmont.
Frazer, Jas. C.	Spanish Mills.
Fremlin, H. P.	Richards' Land'g.
Foster, Ed. G	Sault Ste. Marie.
Farrell, Peter M.	Whitefish.
Griffith, Geo. F	Pembroke.
Graham, John	Arnprior.
Golden, Jno.	Gilmour.
Gunter, Henry M	Trenton.
Goltz, Ernest	Bardsville.
Green, Forman A	Gilmour.
Green, Samuel E.	Parry Sound.
Grant, John	Flinton.
Green, Arthur	Ottawa.
Green, Norman McL.	Bancroft.
Gillis, John J	Whitefish.
George, R.	Parry Sound.
Gardiner, John.	Parry Sound.
Golden, Frank J	Trenton.
Garson, Robert	Thessalon.
Gropp, August.	Penetanguishene.
Grozelle, Antoine D.	Muskoka Mills.
Goulais, James	Peterborough.
Grayson, Charles.	Keewatin.
Gladstone, Harry E.	Cook's Mills.
Graham, Edward G.	Wahnapitae.
Griffin, James	Spanish River.
Gordon, Alexander B.	Pembroke.
Gareau, Noah J.	Pembroke.
Gordon, Robert W.	Pembroke.
Guertin, Nelson	Petawawa.
Gardener, John	Rat Portage.
Gunter, Peter M.	Gilmour.
Glennie, William	Millbridge.
Gorman, Maurice J.	Fenelon Falls.
Gillies, John A.	Braeside.
Gadway, John	Parry Sound.
Garrow, Edward	Webbwood.
Golding, William	Dorset.
Gillies, Harry	White Lake.
Gordon, Herbert C.	Nelson.
Gillespie, M. H.	Cook's Mills.
Griffin, William	Huntsville.
Ganton, David	Trout Creek.
Graham, George L.	Arnprior.
Graham, Frederick S.	Arnprior.
Gill, Cuthbert	Orillia.
Graham, James Robert	Rat Portage.
Graham, Thomas Jordan	Byng Inlet.
Gaudaur, Antoine Daniel	Orillia.
Gorman, Patrick	Eganville.
Hurd, Cyrus.	Parry Sound.
Hartt, James	Gilmour.
Hayes, James	Enterprise.
Humphrey, T. W.	Gravenhurst.
Huckson, A. H.	French River.
Handley, Robert.	Douglas.
Howe, Alexander	Queensborough.
Hurd, Edwin	Hurdville.
Huff, J. S. Morris	Arnprior.
Halliday, Robert J.	Lindsay.
Hutton, John	Hutton House.
Hutchinson, Wm. E.	Huntsville.
Hogarth, Joseph Rowan	Pembroke.
Humphrey, John.	Gravenhurst.
Hill, Joshua	Midland.
Hall, David.	Lovering.
Hartley, Charles.	Peterborough.
Hawkins, Henry Charles	Blind River.
Hines, Philip Wallace	Huntsville.
Hudson, John Lewis	Combermere.
Helferty, Dennis	Eganville.
Hamilton, Robt.	Rat Portage.
Hoppins, Abiram.	Kingston.
Hoppins, Densmore	Kingston.
Haystead, John	Parry Sound.
Henderson, John Irwin.	Bobcaygeon.
Hartley, William	Millbridge.
Higgins, John C	Peterborough.
Harrison, John, Jr.	Pembroke.
Hawkins, E.	Le Breton Flats.
Henderson, Charles.	Bracebridge.
Halliday, Frank	Parry Sound.
Halliday, James.	Springtown.
Hurdman, J. A.	Ottawa.
Hawkins, Stonewall J.	Meldrum Bay.
Hinchliffe, William	Gunter.

(*Appendix No. 38.*)—*Continued.*

Name.	P. O. Address.	Name.	P. O. Address.
Hillis, James M.	Sutton West.	Kearney, Michael John	Buckingham, Que
Harirs, Wm., Jr	Day Mills.	Kendrick, John	Burk's Falls.
Hogg, W. J.	North Bay.	Kennedy, John L.	Burk's Falls.
Hoxie, E. P.	Katrine.	Kennedy, Jno. W.	Ottawa.
Hawkins, Walter.	Pembroke.	Kelly, James F.	Trout Creek.
Howard, James	Eganville.	Kauffman, Julias	Blind River.
Howard, William	Baysville.		
Hogan, Enos W.	Savanne.	Leannoth, Francis	Arnprior.
Horne, John T.	Fort William	Lee, James.	Warren.
Hamilton, Chas E.	Rat Portage.	Lloyd, Alfred	Severn Bridge.
Henderson, Leonard	Baysville.	Lawrie, Frank A.	Parry Sound.
Hunter, Thos.	Callander.	Latimer, Jas.	Frank's Bay.
Hamilton, Robt. J.	Ottawa.	Lemyre, Middey	Campbellford.
		Lutz, Jacob	Parry Sound.
Irwin, Thos. H.	Parry Sound.	Luby, John E.	Ottawa.
Irwin, Eli	Rat Portage.	Law, Wm. J.	Markstay.
		Lummis, Daniel	Glanmire.
Johns, Frank A.	Toronto.	Lowe, W. C.	Port Arthur.
Jackson, Robert	Brechin.	Londry, S. C.	Sault Ste Marie.
Johnson, Finlay	Bracebridge.	Lochnan, James	Ottawa.
Jones, Albert	Victoria Harbor.	Lozo, John	Trenton.
Johnson, Thomas	Bobcaygeon.	Loughrin, Lawrence	Pembroke.
Johnston, Archibald M.	Norman.	Linton, J. H.	Parry Sound.
Julien, Charles	Trenton.	Ludgate, James	Peterborough.
Junkin, Henry	Marmora.	Lee, Robert	Huntsville.
Johns, Frank	Nipissing Junct'n	Langford, Mark	Baysville.
Jessup, Edward D.	Cache Bay.	Letherby, Edwin	Midland.
Johnson, Frank N.	Ottawa.	Lovering, William James	Coldwater.
Johnston, John	Peninsular Lake.	Lane, Maurice	Bobcaygeon.
Johnson, S. M.	Arnprior.	Lenton, George	Peterborough.
Jones, Frederick James.	Flinton.	Lowe, Thomas A.	Renfrew.
Johnston, William A.	Castleford.	Livingston, Robert M.	Huntsville.
Jervis, Henry	Wisawasa,	Londry, William E	Sault Ste Marie.
Jones, William	Fenelon Falls.	Labelle, James	Waltham, Que.
James, Martin	The Flats.	Labelle, Eli.	Waltham, Que.
		Ladurante, J. D.	Ottawa.
Kintree, Stuart	Little Rapids.	Ludgate, Theodore.	Peterborough.
Kerby, John	Belleville.	Lucas, Frank	Sault Ste Marie.
Kennedy, Robert	Marmora.	Lunam, Duncan	Collfield, Que
Kirby, Louis Russell	Ottawa.	Lott, George	Trenton.
Kennedy, Timothy.	Enterprise.	Lawrie, John D.	Parry Sound.
Kirk, Henry	Trenton.	Lovering, George Francis	Coldwater.
Knox, Milton	Ottawa.	Lavigne, John.	Aylmer, Que.
Kinsella, Michael Pierce	Trenton.	Landell, Charles S.	Huntsville.
Kitchen, D.	French River.	Long, Henry Elisha	Mattawa.
Kelly, Jeremiah	Sudbury.	Lynch, W. H.	Collingwood.
Kelly, Ferdinand	Mattawa.	Laplante, Francis.	Byng Inlet.
Kennedy, T. J.	Arnprior.	Lindsay, Jas.	Arnprior.
Kenning, Henry	Pembroke.	Labelle, Michael	Arnprior.
Kirby, D. F.	Belleville.	Legree, John	Dacre.
Kirkpatrick, David	Lindsay.	Lagree, James L.	Calabogie.
Kelly, Michael J.	Baysville.	Leigh, John Chas.	Gravenhurst.
Kirk, Wm. James.	Webbwood.	Lloyd, Edward B.	King.
Kerr, E. G.	Thessalon.	Lemyre, Bruno	Gravenhurst.
King, Napoleon	Mattawa.	Lavelle, Charles H.	Canoe Lake.
Kean, B. F.	Orillia.	Lyons, James	Waltham Sta, Que
Kemp, Orval Wesley.	Trenton.	Ledwood, Chas	Ottawa.
Kirk, Charles Barron	Queensborough.	Lavelle, Emery	Waltham Sta, Que
Kingsland, W. P.	Ottawa.	Little, Theo.	Rat Portage.
Kerr, John B.	Arnprior.		
Kennedy, Walter.	Arnprior.	Malloy, Mark	Baysville.
Kennedy, John	Pembroke.	Martin, Hugh	Saulte Ste Marie.
Knox, Wm. M.	Fesserton.	Miller, R. O.	Gravenhurst.

(*Appendix No. 38.*)—*Continued.*

Name.	P. O. Address.	Name.	P. O. Address.
Menzies, Archibald	Burk's Falls.	McFadyen, A. J.	Bracebridge.
Manning, James	Trenton.	McCauley, Thos. J	Goulais Bay.
Martin, Philip	Stoco.	McDonald, John C	Spanish Mills.
Malone, Wm. Pat	Ottawa.	McKenzie, Alex E.	Ansonia.
Marsh, Esli Terril	Trenton.	McIntyre, John	Arnprior.
Millar, John W	Huntsville.	McGenigal, John H.	Whitby.
Mutchinbacker, Asa	Rosseau Falls.	McCart, Patrick	Arnprior.
Morris, George F.	French Bay.	McGrath, Thomas B.	Peterborough.
Murray, George, Jr.	Waubaushene.	McCormick, James J	Trenton.
Maughan, Joseph	Fort William.	McCarthy, Wm.	Fenelon Falls.
Margach, Wm. J.	Port Arthur.	McAvoy, Owen	Campbellford.
Murray, George, Sr.	Waubaushene.	McConnell, Lewis	Fesserton.
Maniece, Wm.	Peterborough.	McMullen, George	Spragge.
Murray, Wm.	Rat Portage.	McNab, Angus	Burnstown.
Morgan, Richard J.	Rat Portage.	McColgan, C. H.	Quyon, Que.
Magee, Thomas Arthur	Rat Portage.	McCallum, Webster	Arnprior.
Murdoch, James	Cook's Mills.	McCagherty, Robert E.	Westmeath.
Mulvahill, Wm.	Arnprior.	McNab, Archie.	Calabogie.
Murphy, Arthur	Ottawa.	McDonald, Malcolm	Spragge.
Mahew, Jacob	Northcote.	McIvor, J. A.	Fort Francis.
Milne, Archie	Arnprior.	McCulloch, M	Rat Portage.
Murray, James	Peterborough.	McPherson, Jas. S.	Rama.
Moore, James A. E.	Lakefield.	McKinley, Edward C.	Toronto.
Moore, Henry R	Lakefield.	McClelland, John	Parry Sound.
Mickle, Charles S.	Gravehurst.	McFarlane, J. W.	Cache Bay.
Mullen, James	Webbwood.	McDonald, Roderick	Pembroke.
Morley, A. W.	Winnipeg.	McCormack, Wm.	Pembroke.
Munroe, Peter P	Commanda.	Macpherson, John	Ottawa.
Mason, Benjamin.	Westmeath.	McEachren, John A.	West Gravenhurst
Monaghan, John B.	Arnprior.	McLeod, Dugald	Gravenhurst.
Monaghan, M. J	Arnprior.	McClelland, R. H.	Parry Sound.
Mulvihill, John	Arnprior.	McEvoy, Frank	Campbellford.
Moran, Andrew	Rockingham.	McDermott, Peter	Orillia.
Mulvihill, Michael	Arnprior.	McIlroy, John	Madoc.
Mann, John	Manitowaning.	McNab, Robert J.	Parry Sound.
Marrigan, Richard	Deseronto.	McFadden, James	Ottawa.
Monaghan, John Dorland	Deseronto.	McIntosh, James G.	Carleton Place.
Matheson, Wm.	Chelmsford.	McInnis, Hector D	Bracebridge.
Munro, Alexander G	Braeside.	McKinnon, Malcolm	Bracebridge.
Monro, Philip	Braeside.	McLean, Daniel	Bracebridge.
Mangan, Patrick	Arnprior.	McKinnon, Archie J	Bracebridge.
Marcil, Peter	Ottawa.	McKay, D. C.	Baysville.
Main, Samuel	Spanish Station.	McDonald, James.	Parry Sound.
Morley, Charles	Huntsville.	McPherson, Allan	Longford.
Moore, David Henry	Peterborough.	McDonald, James P.	French River.
Murphy, John	Arnprior.	McFarland, Joseph C.	Port Severn.
Mathieson, Daniel	Chelmsford.	McNabb, Alexander	Thessalon.
Milne, Wm.	Ethel.	McGillivray, Archibald	Port Arthur.
Mangan, Charles	Burk's Falls.	McGrane, Edward	Lindsay.
Mooney, Lincoln	Orillia.	McLeod, Donald, Jr.	Keewatin.
Mangan, John	Arnprior.	McDonald, Hector R	Thessalon.
Mooney, Thomas.	Kingston.	McDougall, Duncan.	Bracebridge.
Mason, Robert T.	Rochesterville.	McNabb, Alexander D.	Warren.
Moore, Wm. John	Gravenhurst.	McCormack, John C.	Sudbury.
Morrison, Donald.	Reay.	McNamara, John	Byng Inlet.
Moore, Wm	Bobcaygeon.	McGillivray, Duncan D.	Algoma Mills.
Mutchenbacker, Herman	Rosseau Falls.	McIntyre, Daniel A	Klock's Mills.
Moors, Norman	Arnprior.	McNamara, Lewis	Klock's Mills.
Morley, John R	Rat Portage.	McDonald, Sidney C.	Mattawa.
Mackay, J. A.	Big Forks.	McCool, Christopher L.	Cartier.
Miller, Robt	Montreal.	McCollum, Donald	Arnprior.
		McDowell, Wm.	Cache Bay.
McCaw, Joseph E.	Tweed.	McConachie, Roy Stewart	Huntsville.

(*Appendix No. 38.*)—*Continued.*

Name.	P. O. Address.	Name.	P. O. Address.
McPhee, Ronald	Bracebridge.	McDonald, John D.	Mattawa.
McKay, George Donner	Dorset.	McCagherty, Jos. T.	Westmeath.
McWilliams, Maxwell Theodore	Peterborough.	McAdam, Arch H	Quyon, Que.
McLeod, John	Keewatin.	McMurphy, Dougald, Jr.	Rat Portage.
McPherson, George	Keewatin.		
McDougall, John D.	Rat Portage.	Nescott, Geo.	Rat Portage.
McGregor, Duncan	Burnstown.	Newton, Frank	Gravenhurst.
McLean, Peter W.	Sand Point.	Newburn, Wm.	Parry Sound.
McManus, John C	Arnprior.	Niblett, James	Arnprior.
McNabb, Alexander	Arnprior.	Niblett, Robert	Osceola.
McFarlane, Alexander	Renfrew.	Newall, John H	Parry Harbor.
McFarlane, J. D.	Stewartsville.	Nolan, John	Gravenhurst.
McFarlane, Duncan	Renfrew.	Newton, Charles W.	Victoria Harbor.
McKendry, Wm. B.	Arnprior.		
McPhee, Hugh	Renfrew.	Overend, George J	Longford Mills.
McPhee, John	Arnprior.	O'Brien, Andrew	Ottawa.
McLachlin, Peter	Arnprior.	O'Connor, John	Hintonburg.
McLachlin, Alexander	Arnprior.	Oliver, Darcy	Wahanpitae.
Mackey, Edward	Arnprior.	O'Connor, Wm.	Nosbonsing.
McEwen, Henry	Trenton.	O'Neill, James W	North Bay.
McDonald, Alfred	Peterborough.	O'Donnell, Wm.	Penetanguishene.
McGeary, John J.	Sundridge.	Owens, Richard	Basin Depot.
McDonald, Archibald W'	Gilmour.	O'Reilly, Patrick	Cartier.
McCaw, John Gillen	Queensborough.	O'Neill, Mark	Renfrew.
McCauley, Barney	Trenton.	Orrill, John	Trenton.
McDougall, James T	Klock's Mills.	O'Neill, Patrick	Bancroft.
McInenly, Thomas	Quebec, Que.		
McBride, Archibald	Arnprior.	Pigott, John	Fitzroy Harbor.
McFarlane, Robert L.	Arnprior.	Pattison, Thomas	Bracebridge.
McGowm, Wm	Parry Sound.	Price, A. E.	Arnprior.
McGown, Thomas	Parry Sound.	Presley, J. F.	Ashton.
McDermet, Patrick.	South River.	Power, Jas.	Bobcaygeon.
McKay, Angus.	South River.	Petrie, Geo. A	Fergus.
McDonald, A. J	Longford.	Pomeroy, Peter	Trenton.
McInnis, Angus D.	Gravenhurst.	Perry, Pringle K.	Byng Inlet, North
McKendry, Alexander	Waubaushene.	Purcall, William G.	Ottawa.
McGuire. Timothy	North Bay.	Purvis, John.	Parry Sound.
McGrath, John.	Peterborough.	Porter, Jas.	Uphill.
McWilliams, John Bannon	Peterborough.	Pearson, John James	Lindsay.
McCagherty, Patrick	Westmeath.	Paterson, John	Wahnapitae.
McKendry, Daniel	Arnprior.	Paterson, Alexander	Orillia.
Macdonald, D. F.	Parry Sound.	Parke, James	Gravenhurst.
McManus. Thomas J	Renfrew.	Paquette, Oliver	Webbwood.
Macfarlane, David R	Ottawa.	Palmateer, Sherman	Gravenhurst.
McColgan, Edward	Quyon, Que.	Paget, George	Huntsville.
McMichael, Charles	North Seguin.	Pounder, Joseph	Westmeath.
McIlroy, Thomas Davis	Madoc.	Pell, Richard D	Arnprior.
McDonald, Wm. Henry	Trenton.	Perry, Frederick	Port Arthur.
McGaw. Wm. Thomas	Callandar.	Paget, Charles Edward	Novar.
McMillan. L.	Callandar.	Porter, Thomas Robert Mark	Dorset.
McDermott, John L.	Orillia.	Pountey, E. J.	Arnprior.
McDonald, Charles M.	Pembroke.	Pyburn, David J	Dorset.
McPhee, Benjamin	Pembroke	Purdy, Geo	Hintonburg.
McGee, John Edward	Parry Sound.	Playfair, Andrew, Wm	Sault Ste. Marie.
Macfarlane. Mack	Arnprior.	Pipe, Taylor.	Haileyboro.
MacCallum. Alexander	Braeside.		
McRae, Farquhar	Rat Portage.	Quinn, William	Peterborough.
MacCullum, Albert	Arnprior.	Quigley, Hugh.	Penetang.
McGonigal. John.	Arnprior.		
McConachie, John	Huntsville.	Robertson, D.	Rat Portage.
McKay, D. G.	Rat Portage.	Richardson, Frederick George	Trenton.
McDonald, James	Peterborough.	Richards, Richard	Tamworth.
McCullough, John L.	Lonsdale.	Riddell, George Alexander	Rochesterville.

(Appendix No. 38.)—Continued.

Name.	P. O. Address.	Name.	P. O. Address.
Richey, Evan	Brentwood.	Smyth, Job E	Cache Bay.
Randall, Louis G	French River.	Sage, Nelson	Muskoka Mills.
Richardson, Charles Mervyn	Trenton.	Shaw, Thomas B	Waubaushene.
Rochester, Daniel Baillie	Ottawa.	Swanston, James	Peterborough.
Riddell, James	Ottawa.	Simpson, William	Hall's Bridge.
Rice, Asa A	Hull, Que.	Sadler, Thomas	Lindsay.
Roberts, T. A	Huntsville.	Smith, Patrick Albert	Norman.
Ross, Andrew	Longford Mills.	Snaith, William J	Mattawa.
Rose, Donald M	Rat Portage.	Sinn, Wm. F	Arnprior.
Rawson, Charles Edgar	Coldwater.	Sheppard, Wm. Joseph	Waubaushene.
Ross, George	Waubaushene.	Sequin, Napoleon	Spanish Station.
Roberts, Percy T.	Keewatin.	Scrim, Robert	Arnprior.
Ritchie, Wm. D	Little Current.	Sharp, James A	Sudbury.
Ramsay, Robert	Arnprior.	Shaneay, Harry S	Cook's Mills.
Ritchie, J. F	Arnprior.	Smith, Wm	Ottawa.
Ritter, Samuel G	Ahmic Harbor.	Stewart, Daniel	Braeside.
Robinson, Wm.	Bobcaygeon.	Sheehan, Michael H	Waubaushene.
Reid, Joseph B	Lindsay.	Scott, Thomas	Parry Sound.
Ross, Walter M	Ottawa.	Smith, Lawrence	W. Saginaw, Mich
Ruttle, H. A	Carleton Place.	Shea, Stewart	Campbellford.
Richards, Benedict	Ottawa.	Sullivan, John	Sault Ste. Marie.
Regan, John	Orillia.	Sinclair, Finlay	Sudbury.
Russell, Wm.	Pembroke.	Shiels, Henry F	Cartier.
Ramsay, Charles	Sudbury.	Smith, Gideon Ousley	Burk's Falls.
Russell, Corsan L	Pembroke.	Smith, John Wallis	Thedford.
Richards, Henry	Dacre.	Smith, Henry G	Arnprior.
Ryan, Wm.	Killaloe.	Story, John A	Ottawa.
Rooney, Wm. H	Campbellford.	Sweezey, Benjamin	Massey.
Revell, J. O	Dryden.	Sheppard, Charles H	Coldwater.
Rankin, Anthony	Cache Bay.	Sinclair, Armon D.	Arnprior.
Ross, Angus	Orrville.	Smith, Sidney E	Ottawa.
Robinson, Albert E	Washago.	Sleeman, Wm	Rapid River.
Robinson, Edward	Washago.	Sheenan, Peter F	Loring.
Robinson, Thomas G	Washago.	Sleeman, Geo	Rapid River.
Revell, Lionel Oliver	W. Gravenhurst.	Standish, Wm. H	Batchaw'ing Bay.
Regan, Judd Patrick	Orillia.	Simpson, Wm. A	Lakefield.
Robins, Etna Rosedale	Orillia.	Scollard, Wm	Young's Point.
Regan, John, Jr	Orillia.	Shuttleworth, Alma	Trout Creek.
Ryan, James	Savanne.	Shanacy, Wm. J	Spragge.
Rusk, Oscar W	Cache Bay.	Sullivan, Jas.	Aylmer, Que.
Robinson, Thos. Geo	Bracebridge.	Scully, Cornealius	Whitney.
Rooksby, Wm	Campbellford.	Savoy, Eutrope	North Bay.
Ramesbottom, Robt	Byng Inlet.	Smith, Walter J	Campbellford.
Roy, Lewis	Arnprior.	Seymour, Jno. J	White Fish.
Riddell, Horace A	Galetta.	Smith, Alex. R. C	Burk's Falls.
Rowan, A. L	Sault Ste. Marie.	Stewart, Richard M	Chelsay, Que.
Ritchie, James A	Spragge.	Souliere, Jno, H	Canoe Lake.
		Smith, Abraim G	Quyon, Que.
Smith, M. D	Fort William.	Swallow, C. H	Day Mills.
Scanlan, William	Enterprise.		
Sutherland, D. H	Gravenhurst.	Tait, Thomas B	Burk's Falls.
Spanner, John	Huntsville.	Taylor, C. M	Gravenhurst.
Shier, James D	Bracebridge.	Thornton, W. D	Longford Mills.
Spooner, W. R	Katrine.	Trussler, Gilbert	Trout Creek.
Simpson, Alfred E	Wakefield.	Thompson, Geo. S	Lindsay.
Souliere, John B	Ottawa.	Thompson, Frederick A. H	Callandar.
Shields, James A	Carleton Place.	Thompson, Francis Henry	Nosbonsing.
Spargo, George	Ottawa.	Train, A. C	Rowan Mills.
Smyth, W. H	Byng Inlet, North	Turgeon, George	Cook's Mills.
Salmon, R. H	Baysville.	Thomson, Alexander W	Arnprior.
Salmon, Alexander C	Baysville.	Taylor, Thomas G	Gravenhurst.
Stremer, A	Ottawa.	Trowse, A	Arnprior.
Shields, Frank A.	Parry Sound.	Thompson, Daniel	Port'ge du Fort, Q.

(Appendix No. 38.)—Concluded.

Name.	P. O. Address.	Name.	P. O. Address.
Taylor, Edward A	Westmeath.	Weston, Frank R.	Midland.
Tait, Ralph	Arnprior.	White, James B.	Manitowaning.
Train, William	Burk's Falls.	Wilson, James A., Jr.	Webbwood.
Turner, Gavin F.	North Bay.	Whaley, Thomas	Huntsville.
Tilson, Joseph	Burk's Falls.	Webster, Wm. Alfred	Bracebridge.
Tuffy, John	Cartier.	Wornsdorf, Grederick Gutlep	Pembroke.
Thorpe, Thos.	Pembroke.	Warrell, Wm.	Trout Creek.
Taylor, Chas. E.	Gravenhurst.	Wims, Peter.	Blessington.
Tench, Arthur	Hekkla.	Wickware, Philip Almonte	Cloyne.
		Wilson, Edward	Deseronto.
Udy, Dean	French River.	Whelan, P. J.	McDougall.
Urquhart, Elias	Gravenhurst.	Whyte, John Thomas Goth	Ottawa.
		Watterworth, J. A.	Sault Ste. Marie.
Vigrass, Percy J.	Dufferin Bridge.	White, Wm. James.	Muskoka Falls.
Vincent, Joseph	Warren.	Warrell, George	Powassan.
Vollin, Samuel	Nosbonsing.	Wells, Geo. W.	Little Current.
Vannier, Nelson Joseph	Bobcaygeon.	Wilson, Frederick Gould	Rat Portage.
Vincent, James	Fesserton.	Wallace, John Thomas	Thessalon.
Vincent, Henry T.	Port Sidney.	Wilkins, Geo. N.	Baysville.
		Wylie, Byrom M.	Webbwood.
Watson, Wm.	Huntsville.	Wood, Thos.	Parry Sound.
Webb, Geo. W.	Parry Sound.	White, Jno. B	Kippewa, Que.
Wilcox, Thomas	Parry Sound.	Whelan, Peter M.	Renfrew.
Wheeler, J. A. McL	Tamworth.		
Widdifield, C. H.	Pine Orchard.	Yuill, John Albert	Braeside.
Whitmore, Edgar	Rosseau Falls.	Young, Wm.	Severn Bridge.
Wright, L. B.	Sault Ste. Marie.	Young, A. J.	Cache Bay.
Ward, Joseph W.	Ottawa.	Young, Samuel	Coldwater.
Wilkinson, Wm.	French River	Young, Patrick P.	Young's Point.
Waldie, John E.	Victoria or.	Young, Francis G.	Young's Point.
Wigg, Thomas G.	Thessalon.	Yuill, Thomas	Arnprior.
Wall, Patrick B.	Cheboygan, Mich.	Yuill, A. D.	Braeside.
Wells, John R.	Little Current.	Young, C. T.	Harvey.
Whiteside, John.	Huntsville.	Yuill, John Alex.	Arnprior.
Watt, Wm	Peterborough.	Yuill, Archibald	Bracebridge.
Wilson, George.	Lindsay.	Yuill, Wm. J.	Braeside.
White, Thomas.	Parry Sound.		
Watson, Wm.	North Bay.	Total, 925.	

AUBREY WHITE,
Assistant Commissioner.

Department of Crown Lands,
Toronto, 31st December, 1902.

REPORT

—OF THE—

PROCEEDINGS

—OF THE—

INTERPROVINCIAL CONFERENCE

—HELD AT THE—

CITY OF QUEBEC

FROM THE 18TH TO THE 20TH DECEMBER, 1902, INCLUSIVELY.

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO.

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1903.

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TORONTO.

PROCEEDINGS

OF THE

INTERPROVINCIAL CONFERENCE

HELD AT THE

CITY OF QUEBEC

From the 18th to the 20th of December, 1902, inclusively

The Interprovincial conference, convened by the Hon. S. N. Parent, Premier of Quebec, met on the 18th of December, 1902, at six o'clock P.M.

This conference was called by the following circular letter sent by the Honorable S. N. Parent to the Premiers of the different provinces of the Dominion:—

Quebec, 20th November, 1902.

DEAR SIR:—

Before Sir Wilfrid Laurier's departure for Europe, in June last, I had occasion to speak to him concerning the increase of the subsidy paid by the Dominion Government to the different provinces. This question has been talked of at different intervals, and especially, in 1887, when the Interprovincial Conference held meetings, but for different reasons, nothing has been done in that regard up to the present moment.

Sir Wilfrid Laurier did not disapprove of the project, but expressed the desire that no step be taken in the matter until he returns. This I did, but I think that now that the session is near at hand, the moment has come when it is proper to submit the question to the consideration of the Dominion Government.

It is not now my intention to give all the reasons which, in my opinion, have a bearing on the question, allow me simply to say this: the Dominion has, of late especially, taken large development, its population has increased in a fair degree and the public revenue has also been steadily increasing. As a consequence of the increase of the population, the provinces, in their respective sphere of action, are called upon to make provision for larger expenses, viz.: the Administration of Justice, Public Instruction, etc., etc., and this, without any increase of revenue, worthy of notice. In fact, the provinces have very few sources of revenue, and these have now practically, in so far as I can see, nearly reached high water mark, while, on the other hand, the revenue of the Dominion is increasing.

My object in writing you is to ask you whether or not you would be disposed to take joint action in that regard with the Premiers of the other provinces. I am writing to them to the same effect. It is my opinion that if we could arrange in such a way as to agree on a joint meeting of the Premiers, which could take place early in December next, in Quebec, for instance, if agreeable to you and other Premiers, or in any other place convenient,—it would be very easy then to come to an understanding which could not fail to have the best results.

As the object of such a meeting should be the adoption of a joint resolution to be presented to the Dominion Goverment, we might perhaps use, as a basis, the resolutions adopted by the Interprovincial Conference, in 1887, to the same effect.

These are the suggestions which I intended to submit to your consideration and I would be much obliged to you if you would kindly advise me in that regard, at your earliest convenience.

Yours truly,

S. N. PARENT,
Premier of Quebec.

In answer to the foregoing circular the following provincial ministers were present at Government House, Quebec, at six o'clock P. M. on the 18th December. 1902 :

QUEBEC.

HONORABLE S. N. PARENT, Premier and Minister of Lands, Mines and Fisheries'
" H. ARCHAMBEAULT, Attorney General.
" A. TURGEON, Minister of Agriculture.
" J. J. GUERIN, Minister without Portfolio.
" H. T. DUFFY, Provincial Treasurer.
" LOMER GOUIN, Minister of Colonization and Public Works.
" A. ROBITAILLE, Provincial Secretary.

NOVA SCOTIA.

HONORABLE G. N. MURRAY, Premier and Provincial Secretary.
" J. W LONGLEY, Attorney General.

NEW BRUNSWICK.

HONORABLE L. J. TWEEDIE, Premier and Provincial Secretary.
" WM. PUGSLEY, Attorney General.

PRINCE EDWARD'S ISLAND.

HONORABLE ARTHUR PETERS, Premier and Provincial Secretary.
" JOHN F. WHEAR, Minister without portfolio.

MANITOBA.

HONORABLE R. P. ROBLIN, Premier.

The Honorable G. W. Ross, Premier of Ontario, unable to be present on account of pressing engagements, transmits to Honorable Mr. Parent a memorandum containing his views on the questions to be discussed at this conference.

The Hon. Mr. Prior, who has replaced the Hon. Mr. Dunsmuir, as Premier of British Columbia, regrets being unable to be in Quebec for the date fixed for the conference, but concurs with pleasure in its object.

The Hon. Mr. Parent, moves that the Hon. Mr. Murray be selected as chairman of the conference.

It is moved in amendment by the Hon. Mr. Murray, seconded by the Hon. Mr. Roblin, that the Hon. Mr. Parent be appointed chairman. Adopted.

It is moved by the Hon. Mr. Parent, seconded by the Hon. Mr. Murray, that Gustave Grenier, clerk of the Executive Council, P. Q., be appointed secretary. Adopted.

The chairman read the following address :

CONFIDENTIAL.

Honorable Gentlemen :

It is with great pleasure that I welcome your presence in this capital and express to you my thanks and those of the Government of which I have the honor to form part, for your having complied with the invitation to discuss some of the subjects in which we have a common interest.

The favourable manner with which all the Provinces received the suggestion of taking into consideration the financial situation in which the constitution governing us has placed the local governments, and of consulting as to the means of improving it, indicates the widespread nature of the uneasiness existing on this subject in the minds of all public men entrusted with provincial affairs.

I regret that the Premiers of two of the provinces have been unable to be present with us. One has been prevented by circumstances of the highest importance, and the other by distance from the place of our meeting. The views of the former will be submitted in a memorandum which has been transmitted to me and which I will lay before you. Both gentlemen view with favor the object proposed to be realized by this conference.

I deem it my duty at once to declare that by this conference, no more than by the conference of 1887, the persons convening it do not intend to embarrass the Federal Authorities ; in inviting you we have only obeyed the sincere desire to bring about an opportunity of studying with you the best measures to be adopted to remove the financial difficulties under which we suffer, and which are due to the imperfections of the organic law which governs us. I have reason to believe that the Government of Canada so considers it, and that every decision which we may adopt with a view of placing our finances on a more solid basis will receive from that government the most favourable attention.

The question of the amendments to be made to the Union Act is not now submitted for the first time to the attention of public men in this country. It has often, in this and other provinces, been the subject of discussion in the Legislatures, of representations to the Federal Government, and of debate in the Parliament of Canada. It was especially at the time of the meeting of the distinguished men who formed part of the interprovincial conference held here in 1887 that it gave rise to most earnest debate, and that the claims of the Provinces were most clearly formulated.

Some of the aspirations then expressed have since been realized. A number of reforms suggested at that time still remain to be effected. Among the latter, one of the most important is undoubtedly that referring to the readjustment of the federal subsidy, and, subject to the suggestions which you may deem expedient to make, it is that which I submit to your consideration.

I will further invite you to study the question as to whether it would be

expedient to make representations to the Government of Canada upon the legislation which has been suggested to it respecting matters which concern the the revenue of the province. The exportation of pulp-wood, upon which it has been asked to impose a heavy export—in fact a prohibitive—duty, gives to this question a great importance, seeing that in some of the provinces the cutting of this wood already produces a large revenue and one that bids fair to become from year to year much greater.

Four of the Provinces have applied to the Government of Canada for a part of the indemnity paid on account of the Fisheries by the United States in pursuance of the award of the Halifax Commission. The fact that the Federal Authorities have now under consideration the merits of this claim, since we fully exposed our views to them, in June last, will not perhaps allow of our making further representations in the matter at this time.

I will now place before you the chief reasons in support of the demand for the readjustment of the Federal Subsidy, and, in so doing, I will confine myself to those which more particularly concern the Province of Quebec, assured as I am that the representatives of each Province will make known those which are special to them.

Under article 118 of the British North America Act, 1857, the Province receives subsidies of two kinds: first a specific sum of $70,000.00, and, secondly, eighty cents per head of the population of 1,111,566, established by the census of 1861.

The subsidy of eighty cents per head was granted to the Provinces in consideration of the abandonment made by them of their customs and excise duties. By article 64 of the Quebec Resolutions the Provinces transferred to the general Parliament their powers of taxation, for an annual grant equal to 80 cents per head of its population. Article 43 of these resolutions reserved to the Provincial Legislatures the right of direct taxation, and what was really transferred by Article 64 comprised only indirect taxation. As all indirect taxes are either customs or excise duties, it follows that the annual grant of eighty cents per head was in consideration of the abandonment to the central government of the customs and excise duties theretofore collected by the provinces. The distribution of taxing powers established by the Union Act gives effect to the provisions of these resolutions.

The subsidy per head amounts to $889,252.80 for Quebec During the first year of Confederation the revenues from customs and excise amounted to $11,580 968.25 For the year 1900 these two sources of revenue produced $38,245,223.00. Hence it follows that the Province of Quebec which, for the first year of the present system, received a subsidy equal to about seven and three quarters per cent. of the customs and excise duties collected by Ottawa, received for the year 1900 only a percentage of about two and one-third per cent. of these revenues.

The specific subsidy was granted to us to meet the expenses of Government and of the legislature, but it is far from attaining that end now, for in the year 1900 these services occasioned a total expenditure of $503,903.51; it was even insufficient to meet them in the year 1868, during which it was necessary to spend the sum of $213,232.51.

In deduction of these subsidies, between the 1st July, 1867, and the 1st January, 1873, the Province of Quebec was charged, each six months, with its proportion of the half-year's interest on the amount by which the debt of the late Province of Canada exceeded, at the end of the previous six months, $62,500,000. (Section 112 B. N. A. Act.). which interest forms an aggregate amount of $1,327,507.02.

By the Act of the Dominion (1873), 36 Victoria, Chapter 30, the fixed amount of the debt of the late Province of Canada, assumed by the Dominion, was increased from $62,500,000 to $73,006,088.84, and the Provinces of Ontario and Quebec were conjointly liable for interest on such amount as the debt of the late Province of Canada should be in excess of this latter amount ; the amounts of the debts of the other Provinces, assumed by the Dominion, being increased in proportion, and their subsidies increased in the same proportion.

From the 1st January 1873, to the present time, the full amount of the annual subsidy, as fixed by the B. N. A. Act, section 118, viz : $959,252.80, has been paid, without deduction.

By the Act of the Dominion (1884) 47 Victoria, Chapter 4, the subsidies of the Provinces of Ontario and Quebec conjointly, were increased by the sum of $269,875.16, the increase to the subsidy of the Province of Quebec being $127,460.68, which amount has been paid by the Dominion from the 1st July, 1884, to the present time ; the subsidies of the other Provinces of the Dominion being increased at the same time in proportion to their respective populations, according to the Census of 1881.

The amount of subsidies, therefore, received by the Province of Quebec since Confederation, has been as follows :

From the 1st July, 1867, to 1st January, 1873, an annual subsidy of	$959,252 80
From which was deducted Quebec's share of the interest on the excess of debt of the late Province of Canada, which, during the same period, averaged	241,364 00
Leaving a net annual amount received by the Province of Quebec of	$717,888 80

From 1st January 1873, to 1st July, 1884, an annual subsidy of $959,252.80, without deduction.

From the 1st July, 1884, to the present time : an annual subsidy of $1,086,713.48, without deduction.

No mention is made in the foregoing of the annual interest on the subsidy granted by the Dominion Act of 1884, (47 Victoria, Chapter 8), to the Province of Quebec, in consideration of their having constructed the railway from Quebec to Ottawa, amounting to $119,700.00 per annum, paid by the Dominion to the Province of Quebec, as this subsidy has nothing to do with the subsidies to the Provinces of the Dominion, under the B. N. A. Act and the Acts readjusting the same, but is one of a number of subsidies granted by the Dominion to different railways under the said Act of the Dominion, 47 Victoria, Chapter 8.

The expenses for the services other than those for Government and Legislation above referred to, which have to be provided for by the Province in the administration of public affairs show a yearly and constant increase.

Further, the development of the Province has occasioned new expenditure.

The following comparative table shows at a glance the increase :

COMPARATIVE STATEMENT of the expenditure of the Province of Quebec for the fiscal years 1867-1868 and 1900-1901.

	1867-68.	1900-01.
Civil Government	$ 104,096 45	$ 278,307 42
Administration of Justice	300,442 63	618,296 88
Reformatories	26,964 40	60,000 00
Legislation	109,144 06	235,596 09
Education, &c	275,605 27	465 589 68
Asylums, Hospitals and Charities	125,256 53	397,895 75
Crown Lands, Public Works, Agriculture and Colonization	226,678 82	678,806 83
Licenses, &c	15,050 28	72,769 65
Public debt	....	1,617,344 06
Inspection of industrial establishments	....	12,000 00
Quebec Official Gazette	....	13,000 00
Provincial Board of Health	....	17,625 08
Pensions : Civil Service, &c	....	45,321 47
Municipalities' fund	....	180 00
Property sold	....	286 40
Railways	....	123,310 10
Sundry payments	....	71,592 83
	$1,183,238 44	$4,707,932 24

The larger part of the increase is due to various causes, which, notwithstanding all the care given to the management of public affairs, it has been impossible to control.

It is to be attributed in the first place to the increase in population. In 1868 the population was 1,111,566 souls, while in 1891 the figure was 1,620,974 souls. This increase in the population is inevitably a source of expenditure to the Provincial Government, and although it is incumbent upon it to neglect no means of attracting to the Province and keeping therein a large population, it is unfortunately true that the accomplishment of this duty occasions a constant diminution in its pecuniary resources.

This increase in the population is directly responsible for the additional cost for the administration of justice, the maintenance of the educational system, the support of prisons and asylums, and the assistance given to educational and charitable institutions, etc.

As respects the administration of criminal justice, there is another reason, for the increase in the expenditure. It is Federal legislation, which, on more than one occasion, has imposed upon the Province the payment of expenses over which the latter has had no control.

The following table establishes these ever increasing expenses :

1868	$223,732.95	
1878	350,382.96	
Increase		$126,650.01
1878	$350,382.96	
1888	433,839.03	
Increase		83,456.07
1888	$433,839.03	
1898	451,950.14	
Increase		18,111.11
Total increase		$228,217.19

On the other hand, the revenue of the Federal Government from $13,687,-928.00, which it was in 1868, increased to $51,029,994.00 in 1900. From the figures above given, it will be seen that the customs and excise duties form a

large portion of the revenues paid in to the treasury of Canada in consequence of their surrender by the Provinces.

For these reasons, I submit that in demanding from the Federal Authorities an increase in the subsidy per capita, we are asking for a simple act of justice.

Paragraph 5 of the 17th resolution adopted by the Interprovincial Conference of 1887, and approved by the Legislatures of the Provinces represented thereat, formulates in the following manner the basis upon which both the specific and per capita subsidies might be calculated :

" That this Conference is of opinion that a basis for a final and unalterable settlement of the amounts to be yearly paid by the Dominion to the several Provinces for their local purposes and the support of their Governments and Legislatures, may be found in the proposal following, that is to say :

(A) Instead of the amounts now paid, the sums hereafter payable yearly by Canada to the several Provinces for the support of their Governments and Legislatures, to be according to population and as follows :

(*a*) Where the population is under 150,000	$100,000 00
(*b*) Where the population is 150,000, but does not exceed 200,000	150,000 00
(*c*) Where the population is 200,000, but does not exceed 400 000	180,000 00
(*d*) Where the population is 400,000, but does not exceed 800,000	190,000 00
(*e*) Where the population is 800,000, but does not exceed 1,500,000	220,000 00
(*f*) Where the population exceeds 1,500,000	240,000 00

(B) Instead of an annual grant per head of the population now allowed, the annual payment hereafter to be at the same rate of eighty cents per head, but on the population of each province as ascertained from time to time by the last decennial census, until such population exceeds 2,500,000 : and at the rate of sixty cents per head for so much of said population as may exceed 2 500,000 ;

(C) The population as ascertained by the last decennial census, to govern except as to British Columbia and Manitoba ; and as to these two provinces, the population to be taken to be that upon which under the respective statutes in that behalf, the annual payments now made to them respectively by the Dominion are fixed, until the actual population is by the census ascertained to be greater ; and thereafter the actual population so ascertained to govern ;

(D) The amounts so to be paid and granted yearly by the Dominion to the provinces respectively to be declared by Imperial enactment to be final and absolute, and not within the power of the Federal Parliament to alter, add to or vary ;"

For our part we adhere to that resolution and I place it before you as the proposition of our Province upon this matter, with the reserve, however, that we suggest that the rate per head be fixed at one dollar and not at eighty cents.

We believe that we are justified in asking that the rate per head be fixed at one dollar so as to be able to meet the expenses of the administration of Criminal Justice, respecting which a distinct claim was made at the Conference of 1887.

In the majority of the Provinces, it has become impossible by taxation to cover the increased expenditure, and it appears to us, that the only method of meeting all the public requirements is to have the views above expressed accepted by the Federal Government.

If our demand is favourably entertained, the Province of Quebec will receive for the specific subsidy a sum of $240,000, and for the subsidy per capita, at the increased rate and with the population as fixed by the census of 1901, a sum of

$1,620,974.00. This would mean an increase of $170,000 on the specific subsidy and of $731,722 on the other, or a total increase of $901,722. The other provinces would have corresponding increases.

With the additional sums so placed at the disposal of the Province we could encourage Education, Agriculture and Colonization aid in the development of our natural resources and nascent industries; furnish, by practical instruction, the generations to come with the means of engaging in the economical struggles of the future, and supervise with a more jealous care the observance of the laws which insure the security of persons and property.

This expenditure would directly benefit the Government of Canada, which would be more than repaid the sums handed over to us by additional customs and excise duties paid into the Public Treasury by the increased population attracted to the country.

In this manner our deliberations will result in assuring greater security and prosperity and in consolidating to a greater degree the Confederation of the Provinces

May they also draw closer the bonds which unite them, and, if possible, enhance the warmth of the feelings of peace, benevolence and concord which characterizes the relations between the Governments presiding over their destinies.—

The Chairman then laid before the conference the following memorandum from the Hon. Mr. Ross, Premier of Ontario:

Confidential.

MEMORANDUM RESPECTING THE FINANCIAL BASIS OF THE PROVINCES UNDER THE BRITISH NORTH AMERICA ACT.

In considering a revision of the financial basis of the Union of the Provinces, we propose, for the sake of convenience, first to consider the terms of Union as they apply to the four Provinces of Ontario, Quebec, Nova Scotia and New Brunswick, and to compare, very briefly, their position and their wants in 1867 with their position and wants at the present time.

In arranging the terms of Confederation, the Union Act provided for the maintenance of the Governments of the four Provinces named by a specific subsidy of eighty cents per head based on the population of 1861, with a grant in the aggregate of $260 000 for civil government and legislation—the Provinces to raise such additional revenue from Crown lands, tavern licenses and other minor sources as they may deem necessary by direct taxation.

That the fathers of Confederation had a very inadequate conception of the demands which thirty-five years of development would make upon the Provinces is quite evident from the speeches delivered while the Quebec resolutions were before the Legislative Assembly of Canada.

Sir A. T. Galt, referring to the revenue necessities of the Provinces, said (Confederation Debates, page 69): "The local revenue of Upper Canada, during the last four years, has averaged the sum of $739,000, and that of Lower Canada, $557,239; together they amount to nearly $1,300,000, independent of the eighty cents per head which it is proposed to allow the local Governments out of the general exchequer for the purpose of meeting their local expenditures. These local expenditures include such items as the administration of justice, the support of education, grants to literary and scientific societies, hospitals and charities, and such other matters as cannot be regarded as devolving upon the General Government. The whole charge, exclusive of the expenses of local government and legislation, on an average of the last four years, has in Lower

Canada amounted to $997,000, and in Upper Canada to $1,024,622, per annum. In addition to these sums will have now to be added such amounts as may be required to meet the cost of the Civil Government of the country and of legislation for local purposes. It may be difficult to form any reliable estimate of the sums required for this purpose, but when the House considers that, according to the statements given of the expenditure during the last four years, there will be available in the whole Province of Canada the sum of no less than $1,043,015, it must, I think, be admitted that if those charged with the administration of local affairs in Upper Canada exceed this amount they will be guilty of a degree of profligacy and extravagance for which a speedy remedy will be found by the people."

From the previous quotation it will be seen that Sir A. T. Galt assumed that, excluding the expenses of local government and legislation, Upper and Lower Canada (now Ontario and Quebec) would have a surplus of one million dollars a year over the annual expenditure on administration of justice, education, hospitals and charities, and agriculture, etc. Whether wisely or not, the people of these two Provinces have disregarded the economical basis laid down by Mr. Galt, and on these items alone the expenditure for 1901, instead of being $1,300,000, for the two Provinces, as fixed by Mr. Galt, has reached the sum of $2,433,539.71 in the case of Ontario alone and in the case of that of Quebec the sum of $

The Hon. George Brown (page 94, Confederation Debates) reviewing the subsidies of the Province, said: "I am persuaded, Mr. Speaker, that the House will feel with me that we in Canada (by that meaning Upper and Lower Canada) have very little to complain of in regard to the subsidies for local government."

Without waiting to discuss whether, at the time of the Union, the provision made for the Provinces was not generous, (having regard to available revenue and wealth of the country) it is quite clear that this provision was made without adequately anticipating the growth of population and the urgent demands which modern conditions imposed upon the Provinces in the way of education, hospitals and charities, the administration of justice and other expenditures of a local and necessary character. The small household with its moderate wants, on the basis of 1861, is very different to the larger household of 1901 with its many wants, and the proposition now for consideration is should not the terms of the Union Act be amended so that automatically the subsidies from the Dominion would bear the same relation to the wants of the population at each decennial census as presumably they bore at the time they were first settled.

A brief comparison of the expenses of the Provinces in 1861 and 1901 will make this clear. The following table shows the expenditure of the four Provinces on four of the largest items of expenditure in 1861 and in 1901:

Items.	Ontario.		Quebec.		Nova Scotia.		New Brunswick.	
	1861	1901	1861	1901	1861	1901	1861	1901
	$	$	$	$	$	$	$	$
Education	247,192	782,193						
Administration of Justice	171,926	416,042						
Asylums, Hospitals and Charities	146,691	1,025,444						
Agriculture	56,211	209,858						
	622,020	2,433,537						

It is unnecessary to make a prolonged argument to show that in regard to these four items what would be a reasonable expenditure in 1861 would be far from satisfactory in 1901, having regard to the increased population and the natural growth of expenses in the administration of public affairs. Education being more progressive is necessarily more expensive. Teachers require larger salaries; competition requires that the arts and manufactures be considered in the light of modern science; the conditions of agriculture require greater knowledge and skill; asylums and hospitals are demanded by motives of humanity as well as economy; and there is no avoiding the increased expenditure unless we are content to allow the Province to lapse into indifference to the modern spirit of enterprise and development.

It may be said, however, that the Provinces have their own sources of revenue, independent of subsidies from the Central Government, and to these they should apply for the moneys necessary for the comfort of their people and the effective development of their resources. But, as a matter of fact, the Provinces do tax themselves, and very liberally too, for local purposes, in addition to the subsidies, as the following statement for the year 1901 shows :—

—	Ontario.	Quebec.	Nova Scotia.	New Brunswick.
Total revenue	$4,466,043			
Subsidies from the Dominion	1,339,287			
Raised from local sources	3,126 756			

That the Provinces were not expected to contribute more than a reasonable portion from local sources for their own wants is further apparent by the following considerations.

(1) In determining the subsidies which the Central Government could afford to pay, the available revenue of the Central Government had to be considered, This in 1867-8 was $13,486,091, of which $11,570,968 was derived from customs and excise. The amount paid in subsidies the first year of the Union was $2,753,966 or about 24 per cent. of the income of the Central Government from customs and excise. Now in 1901 the gross revenue of the Dominion reached the large sum of $52,514,701, of which $38,743,550 was derived from customs and excise, of which the sum of only $4,250,607 was paid to the seven Provinces of the Dominion or about 11 per cent. of the income from customs and excise. How much of that revenue came exclusively from the four original Provinces it is impossible to accurately determine, but the fact remains that the seven Provinces proportionately receive only about half the sum from the Dominion compared with the first four Provinces that entered into Confederation. Indeed, if the revenue of the Dominion was to be the basis of financial aid to the Provinces, and the proportions agreed upon in the B.N.A. Act were now continued, the Provinces would be in receipt of double the amount now paid by the Dominion. It is true that there is no compact that the subsidies should increase according to the revenues of the Central Government, although such a basis would be eminently fair, inasmuch as the moneys (customs and excise) from which the subsidy is paid by way of refund for maintenance of local Governments is collected from the people of the Provinces, and, indeed, in some respects such a basis for the payment of subsidies would be fairer than payment on a basis of population, as being a refund in proportion to the amount collected.

(2) The present basis ignores the fact that, while the increase of population lightens the burdens of the Dominion inasmuch as it multiplies the contributors to the revenue from customs and excise, the increase of population adds to the burdens of the Provinces without any corresponding contribution towards their maintenance. For instance, the Provinces, through the Central Government, are taxed for maintaining the Department of Emigration, This Department justifies its existence by increasing population from foreign parts, and the Government is recouped for this expenditure through the Customs and Excise Departments. The Province, however, that has to provide for the education of these emigrants, for the administration of justice so far as they are concerned, and for the maintenance of their indigent or insane, has no means of recouping itself because of this increased expenditure imposed on it through the Dominion except at its own expense. Surely this circumstance must have been overlooked or the subsidies would not have been rigidly based on a fixed population as has been the case,

Moreover, in its laudable efforts to develop and strengthen the influence of Canada, the Central Government has imposed many charges upon the people for public works, the purchase and opening up of the North West Territories, the deepening of our canals, the construction of the Intercolonial and Pacific Railways, etc. The effect of this expenditure, we are glad to notice, in the last thirty-five years, has been largely to increase the population of Canada, but while the Dominion Government holds in its own hands the power to meet the wants of this natural increase, (although the increase is Provincial in its character) the Provinces, so far as their administration of the responsibilities devo ving upon them by the Act, receive no benefit whatever, but rather lose from this increase, as the charges by the Dominion Government, which the people of the Province have to meet in order to carry on these large undertakings increase the difficulties of the Provincial Governments in meeting the charges which this increased population imposes upon them under the Constitution.

The Provinces are in this way subjected to a double charge : (1) To find the means through increased customs and excise charges for public works undertaken by the Dominion Government and (2) to provide for the maintenance of the population which naturally follows in their wake.

The undersigned are therefore of the opinion that the B. N. A. Act should be amended so as to provide :

(1) That the Provinces should receive an annual subsidy of eighty cents per head on the population of each Province as ascertained from time to time by the last decennial census.

(2) That in the case of Provinces with a population less than one million, an annual allowance of $200,000 should be made in addition to the subsidy in the preceding paragraph mentioned, for the maintenance of civil government and legislation, and, in the case of Provinces with a population of one million or over, an annual allowance of $300,000 for similar purposes.

(3) That the said sums be paid in half-yearly payments as at present.

It is then resolved that a committee composed of the Hon. Mr. Parent, chairman, and the Honorables Messrs Archambeault, Pugsley, Longley, and Peters, be appointed to prepare a resolution concerning the readjustment of the Federal Subsidy to the Provinces,and the cost of the administration of justice in criminal matters.

The committee submit the following resolutions, which are unanimously adopted :

Whereas, at the time of passing of the British North America Act, 1867, and the subsequent enactments affecting the same, it was impossible to foresee the development of the Dominion and to fix in a definite and unalterable way the distribution of the revenue so as to make sufficient provision for the Central Government and to furnish the various Provinces with the means adequate to carry on their local affairs;

Whereas, it was the evident intention of the framers of the Union Act, as expressed in the Quebec Resolutions of 1864, and at the debates of the Conference at which they were adopted, to make adequate financial provision for carrying on the affairs of the Central Government and those of the various Provinces;

Whereas the financial resources of several of the Provinces, as determined by the various provisions of the Union Act and of the other statutes governing the matter, are no longer sufficient to meet the expenditure necessary to carry on the public affairs of the Provinces, and to promote in an efficient manner their development and progress;

Whereas, under the various statutes now governing the financial arrangements between the several Provinces and the Dominion, a specific subsidy is payable to each Province as follows:

Ontario	$80,000.00
Quebec	70,000.00
Nova Scotia	60,000.00
New Brunswick	50,000,00
Manitoba	50,000.00
British Columbia	35,000.00
Prince Edward Island	30,000.00

Whereas the subsidy was granted to the Provinces for the maintenance of their Governments and Legislatures, but is entirely inadequate for the said purposes, and in order to attain the ends for which it was granted, it would be necessary to increase it and apportion it as hereinafter provided;

Whereas, in addition to the specific subsidy above referred to, the various Provinces are allowed by the Union Act and by subsequent enactments, an annual grant of 80 cents per head of their population as established for the Provinces of Ontario and Quebec by the census of 1861, and for the Provinces of Nova Scotia, New Brunswick, Manitoba, British Columbia and Prince Edward Island, by the last decennial census;

Whereas this subsidy was granted to the Provinces in consideration of the transfer to the Central Government of their Customs and Excise duties;

Whereas the revenue of the Federal Government was in 1868 $13,687.928 00 of which the sum of $11,580,968.25, was from Customs and Excise duties, and the revenue in 1900 was $51,029,994.00 of which the sum of $38,245,223.00 was from Customs and Excise duties;

Whereas the population of the two Provinces for which the basis of the calculation of the per capita subsidy is the census of 1861 has increased as follows:

Provinces.	Census of 1861	Census of 1901	Increase.
Ontario	1,396,091	2,182,947	786,856
Quebec	1,111,566	1,648,898	537,332

Whereas this increase of population has imposed upon the said Provinces heavier burdens in order to meet the increased cost of administration of Justice, Legislation, Education, Maintenance of Prisons and Asylums, Agriculture, Public Works, Charities, etc., and the other urgent demands which modern conditions impose upon them.

Whereas no corresponding increase of subsidy has been granted, notwithstanding the additions to the revenue of the Federal Government.

Whereas it is but fair that in order to place the provinces in a position to meet such expenditure the annual per capita subsidy should be calculated according to the population of the several Provinces ascertained by the preceding decennial census, and that upon this basis, the subsidies to be granted would be as follows:

Provinces.	Pop. census 1861	Actual subsidy	Pop. census 1901	Subsidy	Increase.
		$ cts.		$ cts	$ cts.
Ontario	1,396,091	1,116,872 80	2,182,947	1,746,357 60	629,484 80
Quebec	1,111,566	889,252 80	1,648,898	1,319,118 40	429,865 60
Nova Scotia		320,000 00	459,574	367,659 20	47,659 20
New Brunswick		257,010 40	331,120	264,896 00	7,885 60
Manitoba		122,004 80	254,957	203,957 60	81,952 80
British Columbia		78,538 40	175,657	140,525 60	61,987 20
Prince Edward Island		87,262 40	103,259	82,607 20	
Total					1,258,835 20

Whereas several of the Provinces are not in a position to provide by taxation or otherwise for the additional expenditure required and were not expected to contribute for local purposes more than a certain portion of such expenditure;

And whereas the additional subsidy to be paid by the Government of Canada would be more than reimbursed to them by the additional Customs and Excise duties collected for the Dominion Treasury from the increased population attracted to the country;

Be it therefore

Resolved, 1—That this Conference is of opinion that an equitable basis for a settlement of the amounts to be yearly paid by the Dominion to the several Provinces for the support of their Governments and Legislatures, and in lieu of the allowance of eighty cents per head heretofore paid, may be found in the proposal following, that is to say:

(A) Instead of the amounts now paid the sums hereafter payable yearly by Canada to the several Provinces for the support of their Governments and Legislatures to be as follows:

(a) Where the population is under 150,000 ..... $100,000 00
(b) Where the population is 150,000, but does not exceed 200,000 ..... 150,000 00
(c) Where the population is 200,000, but does not exceed 400,000 ..... 180,000 00
(d) Where the population is 400,000, but does not exceed 800,000 ..... 190,000 00
(e) Where the population is 800,000, but does not exceed 1,500,000 ..... 220,000 00
(f) Where the population exceeds 1,500,000 ..... 240,000 00

(B) Instead of an annual grant per head of the population now allowed the annual payment hereafter to be at the same rate of 80 cents per head, but on the population of each Province as ascertained from time to time by the last decennial census, until such population exceed 2,500,000; and at the rate of 60 cents per head for so much of said population as may exceed 2,500,000.

(C) The population as ascertained by the last decennial census to govern, except as to British Columbia and Manitoba; and, as to these two Provinces, the population to be taken to be that upon which under the respective statutes in that behalf, the annual payments now made to them respectively by the Dominion are fixed until the annual population is by the census ascertained to be greater; and thereafter the actual population so ascertained to govern.

(D) The amounts so to be paid and granted by the Dominion to the Provinces half-yearly and in advance.

Resolved, 2.—That the Premiers of the various Provinces and such other Ministers as may be appointed by the respective Governments, be a Committee to submit the foregoing Resolutions to the Government of the Dominion.

Whereas in the opinion of this Conference it is considered just that the expense of administering the criminal law of Canada should be borne by the Federal Government.

Therefore it is

Resolved.—That in addition to the foregoing resolution, the Dominion Government be requested to consider the matter of the cost of administration of criminal justice conjointly with the other matters submitted, and in addition to the amounts that may be allowed to the Provinces under the claims above set forth, to award to each an amount for that purpose commensurate with the expenditure necessary to be made in that regard.

This Conference further recommends that any apportionment of such amount should be based upon the population of each Province as determined by each decennial census and should not exceed twenty cents per capitum.

That the Chairman be requested to arrange for an appointment with the Dominion Government for the purpose of presenting to them the resolutions of the Conference.

(Signed,)

S. N. Parent,
Chairman,

Horace Archambeault,
Adélard Turgeon,
H. Thos. Duffy,
Lomer Gouin,
Amd. Robitaille,
G. H Murray,

L. J. Tweedie,
B. P. Roblin,
Arthur Peters,
J. W. Longley,
William Pugsley,
John F. Whear.

Gustave Grenier,
Secretary.

The following letter was received by the Chairman from the Hon. Mr. Prior, Premier of British Columbia, on receipt of a copy of the foregoing resolutions:—

PREMIER'S OFFICE,
Victoria, 3rd January, 1903.

HON. S. N. PARENT,
Premier, Quebec.

DEAR MR. PARENT:

I have received your letter of the 24th instant, accompanied by a copy of the resolutions passed at the recent convention of Provincial Premiers. I am very much indebted to you for your courtesy in this matter, as I was anxious to obtain some idea of the proceedings, before I started for Ottawa, which I propose to do about the 10th of this month.

As explained briefly in my telegram, it was impracticable for me to take advantage of the invitation to attend the conference in question. I only received your message notifying me of the date of the meeting the afternoon of the day upon which it would have been necessary for me to have started in order to reach Quebec in time. We had two bye-elections on, and several of my colleagues were absent at the time. You see, therefore, how very difficult it would have been under the circumstances for me to have been present. In addition to that we had already practically arranged to meet the Ottawa Government early in January, which would have necessitated two trips East or a very long stay there. Distance from the seat of Government is always one of our great troubles here in dealing with the central authorities.

I have read with a great deal of interest the resolutions passed at your meeting, and it would have afforded me a great deal of pleasure to have been there to have taken part in your deliberations It would also have afforded me a desirable opportunity of personally explaining the peculiar position in which this Province, under the terms of Confederation, is placed in relation to the Dominion, and to some extent, the other Provinces. We have a set of conditions to deal with here, which only long familiarity with the Province itself would enable you to fully understand. For this reason I would have been able to personally demonstrate the nature and reasonableness of our claims for better terms, more strictly speaking, fairer terms. For this, also, I was pleased to see the action that was taken. I fully realize that without the co-operation and good will of the other Provinces it would be very difficult to impress upon the Dominion authorities the justice of what we seek. The resolutions are very much on the lines of our main contention, and, therefore, I have received great encouragement from the able presentment unanimously adopted by the conference concerning the necessity for a readjustment of financial relations. While they coincide with our views at this end and greatly strengthen our case, they do not, so far as we are concerned, go far enough to meet the special requirements of British Columbia, and I am going to take this opportunity of presenting the salient features of our contention, for your consideration, and that of the other Premiers. To avoid the necessity of going into minute details I am sending you a copy of the correspondence submitted to our Legislative Assembly as the report of the Delegation which went to Ottawa in 1901. This deals with one or two matters of general interest to you, but dwells mainly on the inadequate returns received from the Dominion for the revenues contributing to Ottawa by the Province. We intend, during the proposed convention, to supplement the arguments therein presented with others, which relate to the special physical characteristics of the Province, whereby the sources of revenue provided under the terms of Confederation are shown to be wholly insufficient to meet the requirements involved in the efficient maintenance of civil government and the development of our resources. If this can be shown absolutely beyond contradiction as it can be, simple justice demands ample recognition of our

grievances. Naturally, in seeking special consideration we anticipate objections on the part of the other Provinces, but if we can show that by the very nature of the relations which exist among the different parts of Canada in the way of interprovincial trade and commerce, such recognition of just claims, based on facts and reasonable considerations of public policy, will enure beneficially and equally to all other parts, we expect not opposition, but co-operation on their part.

To illustrate quite clearly what I am endeavoring to show, I will take two or three instances from practical experience in our country's affairs. Permit me to cite one or two chapters in our political history. When in compliance with the terms of the contract with British Columbia, it was proposed to build the Canadian Pacific Railway and to open up the North-West, there was, as you know, great opposition in Eastern Canada and in some respects very reasonable opposition too, on the ground that the credit of the East was being staked for the benefit of the West, and that the older Provinces would be bankrupted by the attempt. I am free to confess that at that time the people of British Columbia thought they had made a very good bargain indeed, a bargain which almost produced a crisis in Dominion affairs. However, Canada very wisely, as it turned out, staked its credit and its resources on the venture and the Canadian Pacific Railway was built. That act made Canada the country it is to-day, and British Columbia alone, from a purely book-keeping aspect, not taking into account the immeasurable results from a commercial and industrial point of view, has paid back, over and above all expenditures, to the Dominion, the whole cash outlay on account of that railway. Moreover, British Columbia and the North-West have provided a market for the East that has proved to be a mine of wealth, and there have followed as a direct consequence, also the trans-Pacific steamship lines and Pacific cable and possibilities of future trade that were at first not even dreamed of.

Again, the building of the Crow's Nest Railway was the direct outcome of the demand of eastern merchants and manufacturers for more direct communication with the mining market of the Southern Interior, the results of which have clearly demonstrated the wisdom of the enterprise. It has also incidentally provided facilities for smelters and the supply of coke, which has been of immense advantage to Canada, and without which the development of the mining industry since that time would not have been possible.

What is a very pertinent illustration of the force of our contention is that at the present time and for some time past, Canada has been paying immense sums out of the general revenue and from its land resources to open up and populate the North-West, which to a very considerable extent, is drawing from the population of the older provinces as well. No one objects to that, although the expenditure is almost wholly local in its application. Why? Because population and development in the North-West mean that the whole of Canada will be repaid many times in revenue and in the additional outlet for its commerce and its manufactures what that development has cost. The fact that the unalienated territory is part of the domain of Canada does not alter the argument in the least, because if similar results will follow in any of the Provinces by following a similar policy of development similar reasons should prevail for adopting such a course.

Therefore, if we can show you that beyond a shadow of doubt the granting of our claims is in harmony with your interests there is only one conclusion to be arrived at, and that is that it is in your interests not only not to oppose but to assist us in every way possible. Every enterprise that has been undertaken in the West, from the building of the Canadian Pacific Railway to the opening up of the Yukon, has been followed by an immediate and direct jump in revenues

and an augmentation of the trade and industry of the Dominion. Take the tables in the "Report of the Delegation" sent you and you would from them alone be able to note the commencement and progress of these enterprises. It is the people of the East who at every stage benefit by the growth of the West. By affording your merchants and manufacturers a safe and remunerative market for your surpluses, which in turn has given employment to your population, and afforded a market for your farm produce at home, we have made Canada prosperous. We pay a very considerable part of the duty incidental to the protection which ensures you this market, and we pay a freight bill many times greater than does the eastern consumer. On the other hand, we can prove to you that in British Columbia, by reason of the physical characteristics of our country, the cost of administration is several times greater than in any other Province, and that every settler we get costs more to us than his value as a local revenue producer, so that the responsibility increases proportionately, and I was going to say, inordinately, with the population. We have a Province of 265,000,000 acres in extent with about 6,000,000 acres of habitable area the cost of schooling, policing and judicial administration, roading, bridging, the maintenance of hospitals and all the rest of it in settlements widely separated, with great physical barriers between, is quite out of proportion to the revenues which can fairly, and without proving burdensome, be made returnable. On the other hand, such settlers, without responsibility and comparatively little cost to the Dominion, contribute still more largely to the Federal coffers. You will see that our Customs and Inland Revenue represent a per capita contribution of $16.50 to the Dominion, including every man, woman, child, Indian, Chinaman and Japanese in the Province—or about three times the average contribution of the whole of the Dominion. We can show you by accurate official statistics that the taxation of each of such individuals—for Dominion, Provincial and municipal—in the Province, is about $30 per head, which is mainly borne by an adult white population of 45,000, and which is not less than $100 per head per annum. It is true that the Province is rich in natural wealth, and if it were not thus rich it would long ago have failed in carrying on responsible self-government or at least in development to any, except the most limited, extent. With an adequate allowance from the Dominion to carry on what is necessary to render our great natural wealth available without burdensome imposts on the people who must carry on this work, the area of development would so increase and the prosperity of the country would be so enhanced that the direct returns to the Dominion would many times repay them. This is practically your contention in the resolutions you have submitted for the consideration of the Dominion Government, only in our case, being a new country and affording the greater opportunities for development, the contention is more forcible and more particularly applicable. You point out, and that truly, that the Provinces are doing the work of development from which in results the Dominion reaps the larger benefits. As the consequence of prosperity arising out of Provincial development the revenues and the surpluses of the Dominion are yearly growing larger while the main sources of revenue upon which the Provinces have had to depend—such as public lands and timber—are diminishing by reason of depletion.

You must remember that when we entered Confederation we had less than 10,000 of a white population. Apart from the old Yale, Westminster and Cariboo road leading into Cariboo—then far past the zenith of its prosperity,—a trail leading into and through the Southern Interior known as the Dewdney trail, and a few roads in the Southern part of Vancouver Island, the country—380,000 square miles in extent—was absolutely without land communication of any kind. Lode mining was consequently out of the question and placer mining, carried

on only by the primitive methods then in vogue, was on the decline. There was, apart from a very limited local consumption, no market for coal except in San Francisco. There was absolutely no fishery industry and no market for the fish so abundant in our seas. When salmon canning was subseqently inaugurated the market was in far off England reached by sailing vessels. The only demand for our lumber—saving limited local consumption—was in foreign markets, in which we were handicapped by distance and the lack of carrying facilities. That market has increased little, if any, up to the present day. Our lands were limited in extent and much harder to clear and make availible for cultivation than farming lands in eastern Canada. Every mile of road or railway cost three times what it did in the East. Labour was scarce and dear and the cost of living far higher than in older settled communities, The source of supply of necessaries of life was in San Francisco, Eastern Canada and in England, with heavy freight bills to add to their cost, and under altered conditions is still largely in Canada. In fact, up to the present these conditions exist still, though in a much modified way. The point is that we buy but cannot sell in the eastern markets. Our future must depend upon the exploitation of our natural sources of wealth—mining, lumbering, fishing and farming, and the possibilities of trade which the favourable position on the western seaboard affords. Our industries must depend largely for all the machinery employed upon the East. Our merchants buy their supplies from your wholesale traders. And in no way, except in the North-West, do we enter into competition, and that only in natural products, with what the East has to sell. For our products we must compete in the markets of the world with other countries in which conditions of labour are much easier. Every settler in British Columbia, for whose comfort, convenience and safety we must provide, is an additional customer for your merchants and manufacturers and an additional contributor to the general revenues of the Dominion. The vast interior of this country still untouched can only be opened up by the building of railways and vast expense in building roads and in administration when opened up. Our extreme western position and distance from eastern centres involve an important additional impost in the way of freights as compared with carrying rates in Eastern Canada. While all this is true, while our responsibilities are comparatively speaking so much heavier and our handicaps so much greater, we are limited under the terms of Confederation, to exactly the same sources of local revenue for local purposes as are all the other Provinces. A natural answer to this, and, on the face of it, a reasonable answer, is that the Province has greater undeveloped resources to draw from to produce revenue than the other Provinces, and that, by diverting a greater share of the proceeds in the way of taxation to the Treasury, the revenues would be increased. There are three such resources, and I will deal with them in order—fisheries, timber and minerals. As to the first, all revenues in the way of licenses in the past have gone to the Dominion, who claimed exclusive jurisdiction. This is, as you know, a question at issue at the present time and constitutes one of our claims against the Dominion. As to timber, there are stumpage fees and royalties per thousand feet, &c. So keen, however, was the competition for local business and so small a margin of profit was there in foreign business that our lumbermen have found it often difficult to pay these imposts. For a time the Province allowed a rebate on foreign shipments of twenty-five cents per thousand. As a matter of fact, our mill men have not made money for a number of years, and an additional impost would have put them out of business. They are handicapped as it is by discrimination in freight as between British Columbia and Puget Sound ports, as shown in the "Report of the Delegation" to Ottawa in 1901. In mining we receive a large revenue for miners' licenses, record fees and the like. In addition, the Province

imposed a two per cent. tax on output on ore, on freight and treatment. This latter has constituted the greatest grievance, on the part of the mining community and is a burning issue to day. Owing to the low price of lead, silver, and the low grade of our immense bodies of copper ores, and in the price of copper there has been a recent big drop; even with the best and most modern facilities for smelting which we possess the margin of profit is small." So much so is this the case that the government has decided to readjust the incidence of taxation on mines and may possibly change the system altogether. So that you see the answer suggested, owing to present conditions, is not an answer at all. Even in coal, we are not in the happy position of Nova Scotia, with a large market at our doors. Our principal market is the Pacific Coast which is limited to certain requirements. and the recent developments in the oil fields has produced a new fuel, which is taking the place, to some extent of coal. If we put a further tax on the output we take it out of the pockets of the local consumer. It is true we have coal-fields in the interior supplying coke, but if an increased tax were put on there it would have to apply to all coal produced in the Province.

That British Columbia under the burdens it has had to carry should have prospered as it has, and perfected its machinery of administration in all lines of civil government, is, I am proud to say, as Premier, a tribute to the enterprise, stability and intelligence of its cit zens. By faith in the possibilities of the future we have overcome many difficulties and placed the Province in an enviable position of prominence to which, of course, many natural advantages and attractions have contributed: and, of course, too, when I say that, I say as much for Eastern Canada from which our best blood has been drawn, or from stock common to both in the older countries in Europe.

You are no doubt thoroughly familiar with the grievances of which Nova Scotia complained at the time that Province claimed better terms. You will observe that two of the grounds, at least up n which redress is sought are identical. It was upon those two grounds, namely, ina lequate sources of local revenue, and physical invironment, that after careful investigation, the claims of Nova Scotia were recognized and allowance made therefor. You will remember also that as late as 1885 the grievances of Nova Scotia were still an issue in that Province, when the Legislature of that Province passed a resolution declaring for better terms or secession. The Hon. Mr. Fielding, present Minister of Finance, was leader of that movement and in the resolutions in question set forth that the disabilities, of which Nova Scotia complained in 1868, still existed and had become accentuated by the lapse of time. While no formal settlement of these grievances took place, nevertheless it is well known that the British Government made concessions which appeased the discontent and we have heard nothing more of it. There are, therefore, most substantial precedents to justify our course.

There are a number of matters included in our case, which apart from the question of readjustment of financial relations, have been outstanding in dispute for some time, which are of no special interest to you and to which I need not draw your attention. But on the main issues I cannot better emphasize the importance of our contention than by quoting an extract from my predecessor contained in a letter to the Rt. Hon. Sir Wilfrid Laurier on the subject.

"The potential sources of revenue belong to the Dominion. We have proved to you that we pay three times the average contribution of Canada to the Dominion and get less than half back. If the people of British Columbia were able to retain all they contribute in taxes to the Provincial and Dominion Governments, they could support every public utility of the Province, both Provincial and Dominion, build their own railways and still have a surplus every year to their credit."

I must apologize for so unduly trespassing upon your time and attention as I have in this letter, but I wished you to understand clearly the merits of our contention, and to demonstrate to you what a special interest I take in the objects of your convention, and how much we, in this part of the world, sympathize with any concerted movement looking to a revision of the terms of Confederation so far as they affect the subsidies paid to the Provinces. I hope to see you while East, and in the meantime I beg to assure you of my sincere desire to co-operate. Yours very sincerely,

EDW. GAWLER PRIOR,
Premier.

Ottawa, January 27th, 1903.

At an adjourned meeting of the Interprovincial Conference, held this day in the city of Ottawa, there were present the Hon. George W. Ross, Premier of of Ontario; the Hon. S. N. Parent, Premier of Quebec, and Hon. H. Archambault, Attorney-General of Quebec; Hon. Mr. Duffy, Provincial Treasurer of Quebec; Premier Murray and Attorney-General Longley of Nova Scotia; Premier Tweedie and Attorney-General Pugsley of New Brunswick; Premier Roblin of Manitoba; Premier Prior and Attorney-General Eberts of British Columbia, and Premier Peters and Hon. Messrs, Rogers and Whear of Prince Edward Island.

On motion of Hon. Mr. Parent, the Hon. George W. Ross was appointed chairman, and on motion of Hon. Mr. Pugsley, John F. Whear was appointed secretary of the meeting.

The Hon. Mr. Parent laid before the meeting the proceedings of the Interprovincial Conference held at the city of Quebec from the 18th to the 20th of December last.

The Hon. Mr. Prior also presented a written memorandum setting forth in detail the opinion of the province of British Columbia as to rearrangement of their financial relation with the Federal Government.

The Honorable Messrs. Ross and Prior, after explaining their inability to be present at Quebec in December last, and stating their views on the subject matter of the resolutions then agreed to, it was thereupon moved by the Hon. Mr. Parent and seconded by the Hon. Mr. Prior, that the resolutions passed at the city of Quebec, on the 20th of December last, be ratified and confirmed. The motion was passed unanimously.

It was further resolved that the Hon. Mr. Parent present the resolutions on behalf of the Conference at a meeting of the Dominion Cabinet to be held this afternoon, and that the Hon. Mr. Ross should speak on behalf of the various provinces on that occasion.

It was the unanimous request that an answer should be given by the Federal Government at as early a date as possible, in view of the near approach of the opening of the Legislatures in the different provinces.

GEO. W. ROSS,
Chairman.

JOHN F. WHEAR,
Secretary.

REPORT OF

THE BUREAU OF MINES

1903

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Geological Map of Stobie and Frood Nickel Mines. By A. P. Coleman.

To His Honor

The Honorable William Mortimer Clark, etc., etc., etc.,

Lieutenant-Governor of the Province of Ontario.

Sir:

I have the honor to transmit herewith, for presentation to the Legislative Assembly, the Twelfth Report of the Bureau of Mines.

I have the honor to be, Sir,

Your obedient servant,

E. J. DAVIS,

Commissioner of Crown Lands.

Department of Crown Lands,

Toronto, 30th April, 1903.

INTRODUCTORY LETTER.

To the Honorable E. J. Davis,

Commissioner of Crown Lands.

Sir:

I have the honor to submit to you herewith, for presentation to His Honor the Lieutenant-Governor, the Twelfth Report of the Bureau of Mines.

The Bureau aims at dealing, first and foremost, with the practical and economic side of mining, hence its energies are directed in the main towards collecting and disseminating information which can be used in the initiation, development and operation of mining and mineral industries in the Province. Such information is necessarily very varied in its character and sources. The working out and classifying of the rock formations of Ontario ; the exploring of the little-known portions of the Province for their mineral possibilities ; the delimiting of those formations which are specially favorable for the occurrence of valuable ores or minerals in general or of particular kinds ; the examination of veins, dikes and ore deposits with a view not only of determining their nature and composition but also of elucidating their mode of origin and relation to surrounding or adjacent rocks, thus obtaining a basis for inferring the possibility of other bodies occurring under similar conditions ; the best methods of working and treating ores and minerals ; the utilization of materials hitherto neglected or considered waste ; the discoveries in science and art and the invention or improvement of processes tending to promote the efficiency of the mining industry, or any branch of it, are all matters naturally coming under the cognizance of the Bureau, and along with facts and statistics relating to the progress of mining in the Province, constitute the fabric of its annual Reports, the object of which is to make known the mineral resources of the Province so that they may be developed and utilized.

The present volume contains a variety of statistical tables showing the output of the mines and mineral works for the year 1902, and also comparative schedules exhibiting the progress made during a series of years in the principal items of mineral production. These tables on the whole tell a story of steady development and of increase both in the quantity and value of the yield.

The Summer Mining Classes, which for a number of years now have been conducted under the auspices of the Bureau for the purpose of instructing miners, prospectors and others in the elements of mineralogy, geology and chemistry, were carried on last year by Dr. W. L. Goodwin, Director of the School of Mining at Kingston, and Mr. J. Watson Bain, Lecturer in Chemistry at the School of Practical Science, Toronto. From Dr. Goodwin's report it will be seen that the efforts of the Bureau to give the working miners and prospectors of the Province an opportunity of acquiring a more scientific and systematic knowledge of the materials of their daily work are much appreciated.

Mr. D. G. Boyd, Inspector of the Michipicoton Mining Division, presents a report of the work done at the Michipicoton office last year, and a brief account of the principal developments in that region.

The Provincial Assay office established at Belleville some five years ago has proved quite successful as a means of furnishing assays and analyses of ores and minerals to prospectors and others at a low charge, and in other ways has materially assisted in promoting the welfare of the mining industry. Mr. J. Walter Wells occupied the position of Provincial Assayer from the beginning up to 1st October 1902, when he resigned and was succeeded by Mr. Alfred G. Burrows. Messrs. Wells and Burrows make a joint report on the office for the year.

For the purpose of inspecting the working mines the Province is divided into two districts, east and west, the division being the western boundary of the Sudbury nickel-copper field. The mines of northwestern Ontario were visited by Prof. W. G. Miller, Provincial Geologist and Inspector of Mines, who submits an interesting report thereon. The report is not confined to a description of the working properties, but includes also considerable information respecting the mineralogical features of Northwest Ontario, embracing among other things an account of the gravel deposits on Savant lake, in which the existence of placer gold was reported a year or so ago. These investigations did not go to show that a placer field of any considerable value is to be looked for in that region. Gold undoubtedly is to be found in the gravel, but in small quantities, probably too small to be profitably worked under present conditions. Prof. Miller's remarks concerning certain features of mining operations are worthy of careful perusal by those responsible for or financially interested in mining work in the territory under review.

In an article entitled The Iron Ranges of Northern Ontario Prof. Miller brings together in concise form data concerning the iron ore deposits and iron ore formations of the northern portions of the Province, much of which is drawn from his own observations in the field.

The mines in the eastern portion of Ontario were examined by Mr. W. E. H. Carter, who is Inspector of Mines as well as Secretary of the Bureau, and his report thereon will be found in the present volume.

The prime importance of fuel in a country and climate like our own has led the Bureau from the beginning to take an active interest in the possibility of developing additional sources of fuel in the peat bogs of Old and New Ontario and the lignites north of the height of land. The latter are outside the range of present transportation facilities, but investigation confirms the opinion that in her hitherto neglected peat bogs Ontario possesses valuable resources, both from an economic and public point of view. The condition, which reached nearly one of panic last winter as a result of the strike of the anthracite miners in Pennsylvania, is still fresh in the public mind, and it is an opportune time to publish the results of the inquiries which the

Bureau has for some time been making with regard to the utilization of peat for fuel purposes. The paper on Peat Fuel, its Manufacture and Use, prepared by Mr. Carter, was printed as a separate bulletin, but is re-published in the present Report.

In a short paper on the Fossiliferous Rocks of Southwestern Ontario Dr. W. A. Parks, lecturer in Geology at Toronto University, records the observations made in a pedestrian trip from Hamilton to the shore of Lake Huron, and gives in addition notes on the occurrence of limestone, marls, gypsum, etc. The wealth of natural resources contained in the palæozoic rocks of older Ontario has never yet been thoroughly explored, and it is hoped by the Bureau to begin the systematic examination of these at an early date.

The running of base and meridian lines on the upper reaches of the Mississaga river, and of a meridian line to connect the townships north of lake Temiscaming with Abitibi lake and river afforded an opportunity of making a geological reconnaissance of these districts. Mr. L. C. Graton was attached as geologist to the surveying party headed by Mr. Alexander Niven O. L. S. who traversed the first mentioned region, and Mr. L. L. Bolton accompanied in a similar capacity the party under Mr. T. B. Speight O. L. S. who ran the meridian line to the Abitibi river. In the paper, Up and Down the Mississaga, Mr. Graton describes the country on the upper portion and tributaries of that stream, which proved to be mainly Laurentian in its character; and in the article, Round Lake to Lake Abitibi, Mr. Bolton performs a like service with regard to the district through which Mr. Speight's line was run. The agricultural capabilities of the Abitibi country possibly overshadow its mineral resources, but in the neighborhood of the height of land the indications are not unfavorable for the occurrence of valuable minerals.

Dr. A. P. Coleman, Geologist and Metallurgist of the Bureau, spent the season for field work last year in the nickel-copper district, and in the paper entitled The Sudbury Nickel Deposits he gives the results of his observations, and states his theories as to the origin of the ores and the relations of the ore-bearing rocks. The paper is accompanied by two geological maps and a number of plans and sections of the principal working mines in the district.

The discovery of iron ore bodies of considerable size and importance in the township of Hutton, northwest of lake Wahnapitae, has excited a good deal of interest among ironmasters both in Canada and the United States. Among the experts from south of the line commissioned to investigate them was Dr. C. K. Leith of the United States Geological Survey and University of Wisconsin. Dr. Leith has been good enough to communicate to the Bureau his views on the geology of this iron field in a short paper entitled The Hutton Township Iron Range.

In the eastern part of the Province are many deposits of magnetite, some of them of good quality, and others lessened in value by the presence of sulphur and an undue proportion of rock matter. The Magnetic Concentration of Iron Ores is a subject possessing much economic interest, and in a paper under that title Mr. J. Walter Wells shows what has been done in this

way in other countries, and also gives the results of experiments in concentrating magnetic ores from various Ontario deposits. Mr. Wells' investigations were carried on by him as a post graduate student of the School of Mining, Kingston.

Many inquiries were made of the Bureau during the past year respecting minerals and mineral deposits, both by prospective purchasers and sellers. The substances involved included almost the entire list of economic minerals found in the Province, but iron ores and iron ore lands were perhaps in greatest demand. Nickel, gold, copper, zinc, molybdenite, iron pyrites, feldspar, mica, baryta, gypsum, petroleum, natural gas, actinolite, corundum and graphite have all formed the subject of correspondence, as well as limestone, for the several varieties of which, suited for particular uses, there has been much inquiry. Marl for cement is abundant in Ontario, and numerous deposits are held for sale by the owners. The same may be said of peat bogs. There has also been some inquiry for sand to be used in glassmaking, and kaolin or china clay for the manufacture of pottery. By informing purchasers where they may secure supplies or deposits, and by advising sellers of the names and addresses of probable purchasers, it is the aim of the Bureau to facilitate transactions to the mutual advantage of both parties.

It may here be stated that it is open to the owners of mines or mining lands in the Province during a limited period of the year, and at a reasonable charge, to procure the services of the Provincial Geologist, Prof. W. G. Miller, for the purpose of reporting upon their properties, and in this way to obtain skilled and impartial advice as to the probable value of deposits, the most economical methods of operation, the relations of ore bodies to enclosing rocks and other problems connected with development or mining. For particulars as to terms, etc., communications should be addressed to the undersigned.

I have the honor to be, Sir,
Your obedient servant,
THOS. W. GIBSON,
Director.

Office of the Bureau of Mines,
TORONTO, 30th April, 1903.

TWELFTH REPORT OF THE BUREAU OF MINES.

By Thos. W. Gibson, Director.

STATISTICS FOR 1902.

In a Province endowed with so great an expanse of territory and so much wealth of natural resources as Ontario, inhabited too by a progressive and energetic people, there is apt to be a feeling of impatience should the utilization of any considerable body of these resources fail to proceed with rapidity. In the development of a country like our own, the first object of attack is the land, from which man's sustenance is to be won ; hence with us agriculture is the oldest as well as the most advanced of the industrial arts. To obtain access to the soil, the first settlers were obliged to fell the trees which covered it, and from this compulsory practice of lumbering, they passed on to level and make use of the forests of pine and other woods which formed so obvious a portion of the national heritage.

Agriculture and lumbering necessarily preceded mining in Ontario, and the natural order of sequence was enforced by other considerations A purely farming people, earning their bread and laying by a modest competence by steady industry, have neither the skill to discover the mineral wealth of the rocks around them, nor the boldness to venture their hard-won earnings in the business of extracting it from the ground.

Again, artificial means of transportation are even more necessary for the development of mining than of agriculture, and much more so than for that of lumbering. The farmers of Ontario for many years sent their products to market over their country roads with little assistance from railways, and the lumberman asks for no better highway on which to transport his product than the forest stream or the boson of the lake. Not so the miner ; especially the miner who brings to the light of day such heavy materials as iron, nickel or copper ore. Railways are a prime necessity to him, both to haul in his heavy machinery and to take away his no less heavy product. Necessarily therefore the mining industry in Ontario has had to wait on the railway builder. No Klondike placer fields have yet been found where the miner's muscle suffices to win golden nuggets from the sand, and which can be worked a hundred or two hundred miles from the nearest railway station, if only food and water can be had. An iron or nickel mine cannot be opened under such circumstances, but must perforce remain undeveloped until the whistle of the locomotive wakes it into action.

The progress of mining in our Province shows these statements to be correct, as witness the opening up of the nickel fields of the Sudbury district, which followed immediately on the building of the Canadian Pacific Railway and which are now the backbone of Ontario's mining industry. So it was also in the case of the iron ranges of Michipicoton. The Helen iron mine was discovered, but although situated within a few miles of deep water on Lake Superior, the ore could not be mined or marketed until the rails of the Algoma Central connected the mine with the harbor. These considerations may partly explain the somewhat tardy development of the business of mining in Ontario ; but having once sprung into being the industry now continues to grow in a healthy and natural way and at a fair rate of speed, as the statistics given in this Report will show.

Mining Companies Formed in 1902.

The number of joint stock mining companies organized is regarded as an indication of the attention which the mining industry receives in any given year. and the list printed below shows that 58 such organizations were formed under the laws of the Province in 1902, with an authorized capital of $48,650,000, as compared with 47 companies in 1901, having an aggregate capital of $27,716,000. There are always a number of foreign corporations which desire to extend their operations to this Province, to accomplish which they are required to take out a license entitling them to do business and hold real estate in Ontario. The number of companies so registering themselves last year was 15, with a total aggregate capital of $17,375,000.

The prominence accorded in the public mind, now to one mineral or mineral product and now to another, as discoveries are made or developments take place which excite interest of a practical or speculative kind, or both, is well reflected by the objects for which companies are incorporated from year to year. For instance the gold "boom" in Ontario caused by the finding of auriferous quartz in many places in the northwestern portion of the Province was at its height in 1897, as is shown by the fact that out of 136 joint stock companies organized in that year 102 were for the purpose of working gold mines, while in 1902 out of 58 companies formed only some 15 were for gold. On the other hand, while in 1897 only 6 companies were incorporated to search for or work oil, gas and oil, or gas, one for cement and none for peat, in 1902 no less than 18 companies were formed for oil, gas and oil, or gas, 4 for cement and 3 for peat. From such figures it is evident that gold mines have given way in the public esteem, at any rate for the time being, to oil and gas wells, and perhaps also cement and peat factories.

The joint stock companies organized for mining purposes in 1902 were as follows:

JOINT STOCK MINING COMPANIES INCORPORATED IN 1902.

Name of Company.	Head Office.	Date.	Capital.
Canada Crude Oil Producers, Limited	Toronto	27 May	$ 100,000
Chippewa Consolidated Gold Mining and Milling Company, Limited	Toronto	8 May	2,000,000
Clover Leaf Mining Company, Limited	Toronto	25 June	1,000,000
Dominion Oil Company, Limited	Chatham	11 December	850,000
Dominion Peat Products, Limited	Brantford	3 April	100,000
Giant Gold Company, Limited	Gold Rock	31 May	700,000
Imperial Natural Gas, Limited	Brantford	12 August	100,000
Indian Joe Gold Mining Company, Limited	Toronto	24 September	1,000,000
International Portland Cement Company, Limited	Toronto	19 November	500,000
Laurentian Mining Company, Limited	Toronto	27 August	1,000,000
Little Rock Consolidated Mining and Developing Company, Limited	Toronto	30 September	1,000,000
North Shore Reduction Company, Limited	Toronto	17 December	1,500,000
Peterborough Peat Company, Limited	Peterborough	23 January	150,000
Protogene Gold Mines Company, Limited	Windsor	31 May	1,500,000
Raven Lake Portland Cement Company, Limited	Toronto	30 June	500,000
Stratford Peat Company, Limited	Toronto	27 March	40,000
Union Petroleum Company of Canada, Limited	Toronto	31 May	25,000
Volcanic Reef Company, Limited	Toronto	27 August	1,000,000
The Algoma Consolidated Silver Mines Company, Limited	Toronto	12 August	1,000,000
The Black Rock Mining Company, Limited	London	30 April	1,500,000
The Cassiar Coal Development Company, Limited	Toronto	25 October	300,000
The Chatham Oil Company, Limited	Chatham	17 December	20,000
The Colonial Portland Cement Company, Limited	Wiarton	30 December, 1901	800,000
The Consolidated Copper Company of Parry Sound, Limited	Parry Sound	7 February	5,000,000
The Consolidated Petroleum Company, Limited	London	17 October	100,000
The Copper Queen Mining Company, Limited	Sault Ste. Marie	27 May	3,000,000
The Croker-Parks Oil Company, Limited	Oil Springs	1 November	50,000
The Daisy Petroleum Company, Limited	London	11 December	40,000

JOINT STOCK MINING COMPANIES—*Continued.*

Name of Company.	Head Office.	Date.	Capital.
The Dunwich Gas and Oil Company, Limited	St. Thomas	25 June	100,000
The English River Gold Mining Company, Limited	St. Catharines	28 February	1,000,000
The Fort Frances Hematite Company, Limited	Fort Frances	21 March	40,000
The Goulais Bay Mining Company, Limited	Sault Ste. Marie	27 August	3,000,000
The Great North-West Mining Company, Limited	Toronto	29 October	3,000,000
The Home Gold and Copper Company, Limited	Toronto	15 October	3,000,000
The Imperial Plaster Company, Limited	Toronto	18 February	75,000
The International Mining Company, Limited	Sault Ste. Marie	16 July	1,500,000
The Jubilee Mining Company, Limited	Toronto	15 October	500,000
The Keenora Mining Company, Limited	Toronto	15 October	1,000,000
The London-Elgin Oil Company, Limited	London	29 October	250,000
The Mariposa Mining Company, Limited	Sault Ste. Marie	16 July	3,000,000
The Mineral Range Iron Mining Company, Limited	Windsor	4 April	500,000
The Mutual Natural Gas Company, Limited	Port Colborne	5 February	100,000
The National Petroleum Company of Petrolea, Limited	Guelph	21 November	40,000
The New York and Canadian Copper Company, Limited	Kingston	12 November	1,000,000
The New York and Ontario Gold Mining Company, Limited	Kingston	26 February	1,000,000
The Oil Exploration Company of Canada, Limited	Walkerville	27 May	200,000
The Phœnix Gold Mining Company, Limited	Fort Erie	13 June	1,000,000
The Port Dover Natural Gas and Oil Company, Limited	Port Dover	11 September	40,000
The President Gold Mining Company, Limited	Toronto	12 February	1 000,000
The Raleigh Oil Company, Limited	Petrolea	11 December	200,000
The Rideau Graphite Company, Limited	Kingston	8 May	30,000
The Saugeen Oil Company, Limited	Walkerton	11 December	10,000
The Sault Gray Copper Company, Limited	Sault Ste. Marie	28 January	400,000
The Sunrise Mining Company, Limited	Sault Ste. Marie	30 July	1,500 000
The Superior Portland Cement Company, Limited	Toronto	17 September	500,000
The Talbot Oil and Gas Company, Limited	Dutton	30 July	40,000
The Union Oil Company of Canada, Limited	Petrolea	24 September	600,000
The Vulcan Reduction and Refining Company, Limited	Toronto	17 September	500,000
			$48,650,000

LICENSED MINING COMPANIES, 1902.

Name of Company.	Head Office.	Date.	Capital.
Canadian Oil Fields, Limited	London, England	30 May	£100.000
Gold Reef Mining Company, Limited	Traverse City, Mich.	17 September	$ 700,000
McKellar Island Silver Mining Company	Detroit, Mich., U S.A	30 April	1,000,000
Pickaud's Iron Company	Cleveland, O., U.S.A	8 May	30,000
Rat Portage Mining and Development Company of Arizona	Phœnix, Ariz., U.S A	17 December	2,000,000
The Black Bay Mining Company, Limited	Willmar, Minn., U.S.A	18 March	1,000,000
The Centre Star Mining Company, Limited	Rossland, B.C	29 January	3,500,000
The Flint Lake Gold Company, Limited	Phœnix, Ariz., U.S.A	25 June	2,000,000
The Northern Light Mines Company	Phœnix, Ariz., U.S.A	14 August	2,000,000
The Ontario Corundum Company, Limited	Ottawa, Ont.	12 November	100,000
The Soo Prospecting and Development Company	Sault Ste. Marie, Mich.	18 April	40,000
The St. Eugene Consolidated Mining Company, Limited	Moyie, B.C.	29 January	3,500,000
The Summit Lake Gold Mining Company of Ontario, Limited	Phœnix, Ariz, U.S.A.	19 December	1,000,000
The Syndicate No. 1, Limited	London, Eng	27 May	£1,000
The War Eagle Consolidated Mining and Development Company, Limited	Rossland, B.C.	29 January	$2,000,000

Mining Lands Disposed of in 1902.

The area of Crown mining lands disposed of last year was considerably less than in 1901, the speculative activity which prevailed some years ago, particularly in gold lands, having spent its force. The area sold and granted under the provisions of The Mines Act was 3,985 acres, as against 11,302 acres in 1901, the amount received as purchase money being $8,202.52, as against $24,865. There was not a proportionate decrease in the lands leased for mining purposes, the area being 25,549 acres, as compared with 28,699 acres in 1901, and the sum paid in as first year's rental being $25,288.38. as compared with $28,411.52. Rentals received on account of lands already leased amounted to $14,171.05, and for miner's and prospector's licenses to $2,742, making a total income from mining lands for the year of $50,404, as against $70,904.51 in 1901.

MINING LANDS SOLD.

District.	Number.	Acres.	Amount.
Rainy River	27	1,104	$ 2,548 50
Thunder Bay	6	376	752 00
Algoma	7	830	1,285 37
Elsewhere	17	1,675	3,616 65
	57	3,985	8,202 52

MINING LANDS LEASED.

Rainy River	101	10,369	10,368 50
Thunder Bay	25	2,450	2,450 25
Algoma	53	7,138	7,117 20
Elsewhere	21	5,592	5,352 43
	200	25,549	25,288 38

It may be of interest as showing the importance of the mineral lands of the Crown from a revenue standpoint, and also the fluctuations which occur from time to time in this source of income by reason of the "booms" which ever and anon arise in the mining business, to show the receipts from the sale and lease of mineral lands during the 12 years the Bureau of Mines has been in existence, as well as the sums paid in as rental for lands previously leased, and for miner's and prospector's licenses.

RECEIPTS FROM MINING LANDS 1891 TO 1902.

Year.	Sales.		Leases.		Rental leases previously issued.	Miner's and prospector's licenses.	Total.	
	Acres.	Amount.	Acres.	Amount.			Acres.	Amount.
		$		$	$	$		$
1891	59,389	117,154	4,998	4,886	.....	.....	64,387	122,400
1892	6,200	15,273	13,122	12,314	603	.....	19,322	28,190
1893	4,370	11,498	13,047	11,934	2,736	.....	17,417	26,168
1894	3,271	7,646	7,050	6,489	3,808	.....	10,321	17,943
1895	7,720	15,868	15,084	14,924	3,287	.....	22,804	34,079
1896	10,733	22,084	13,224	13,498	5,006	.....	23,957	40,588
1897	29,795	59,478	86,014	84,821	6,241	3,021	115,809	153,561
1898	19,529	40,469	48,911	48,064	9,430	3,224	68,440	101,187
1899	35,049	75,367	63 258	63,000	12,608	4,979	98,307	155,954
1900	30,972	69,196	28,127	27,971	8,326	6,801	59,099	112,294
1901	11,302	24,865	28,699	28,412	13,223	4,405	40,001	70,905
1902	3,985	8,203	25,549	25 288	14,171	2,742	29,534	50,404
Totals	222,315	467,461	347,083	341,601	79,439	25,172	569,398	913,673

These figures include actual revenue only, and take no account of considerable sums paid into the Department every year and afterwards refunded on applications which are never completed.

It will be observed that the receipts fell very considerably from 1891 to 1892. This was due to the speculation in nickel lands which been very pronounced in 1890 and 1891 coming suddenly to a close, partly brought about by the increase in the price of mining lands provided by the amendment to The Mining Act passed in May, 1891, and partly to the other clauses then introduced imposing a royalty on ores and making development compulsory. From 1897 to 1900 the receipts were again large, rising in 1899 to $155,954, the highest point in the 12 years. This marked the climax of the excitement caused by the wide-spread discoveries of gold-bearing quartz in northwestern Ontario dating from 1895. Revenue is less important than development, yet an industry which has put into the treasury over $900,000 in 12 years simply as the price of the lands which constitute its basis has even on this score valid claims to consideration.

Mineral Production in 1902.

A natural though perhaps not wholly scientific division of mineral products is into metallic and non-metallic substances ; and both classes show considerable increases in 1902 as compared with 1901. Metalliferous mining is growing both in quantity and value of output more rapidly than the production of non-metallic materials, and perhaps this is not to be wondered at, since so many of the products on the non-metallic list, such as bricks, stone, lime, etc., which are sold in the home market only and do not come into competition with imports of a like kind, are now being produced at a rate equivalent to the full demand or consumption, and so can only expand in yield with the growth of the population. The metallic products of Ontario, on the other hand, are either like pig iron and steel, tending to displace articles of foreign origin in our own markets, or, like nickel and copper, being exported to help meet the world's requirements. Consequently, the limit of growth is by no means reached. The need for furnace mixtures causes considerable iron ore to be imported, but the produce of Ontario iron mines is now on a larger scale than the consumption of our blast furnaces, and the surplus ore finds a market in the United States, notwithstanding the tariff rate of 40 cents per ton. If the duty were abolished, a decided impetus would be given to iron mining, both in eastern and western Ontario.

Another source of demand which ought not to be overlooked in considering the future of metallic mining, especially iron mining, in Ontario, is the population which will eventually fill the fertile lands of northern Ontario and western Canada, and which is even now moving into possession. What changes in trade, what opening up of new channels of commerce may come when the number of souls north of the height of land which separates the waters of Hudson Bay from those of the St. Lawrence begins to equal the number south of it ; or what will be the developments in the national economy when the prairies of the west call aloud for manufactured iron and steel in a thousand forms, no man can foretell ; but there can be little doubt that if Ontario proves to contain the stores of iron ore which there is good reason to believe are hidden in her numerous ranges, the demand for iron manufactures from newer Canada must to a large extent be supplied from her mines. In copper also, whether taken from the mixed ores of the Sudbury fields or the purely copper ores north of Lake Huron or west of Lake Superior, our production is capable of large increase ; while nickel, which may be styled the peculiar metal of Ontario, may be raised in quantities sufficient to meet any demand likely to arise.

The total output of minerals and mineral products in 1902 was $13,391,634, as compared with $11,831,086 in 1901, a gain of $1,560,548, or 13 per cent. Metallic products contributed to this total $6,257,499, as against $5,016,734 in 1901, an increase of $1,240,765, or 25 per

cent; and non-metallic products $7,134,135, compared with $6,814,352 in 1901, a gain of $319,783, or 4.6 per cent. It will thus be seen that the growth of the mining industry is chiefly in the production of metallic substances; and that this growth has of late years been rapid is manifest from the fact that while in 1898 the metallic output of the Province was valued at $1,689,002, or 23 per cent. of the total yield, in 1901 it reached $5,016,734, or 42 per cent. of the total, and in 1902 $6,257,499, or 47 per cent.

Following is a table showing the quantity and value of mineral products in 1902, together with the number of employees and amount of wages paid in connection with each.

SUMMARY OF MINERAL PRODUCTION, 1902.

Product.	Quantity.	Value.	Employees.	Wages.
METALLIC.		$		$
Gold, oz	13,625	229,828	726	343,984
Silver, oz	96,666	58,000	50	36,000
Copper, lb	9,720,000	680,283	1,731	972,909
Nickel, lb	11,890,000	2,210,961		
Iron Ore, tons	359,288	518,445	388	228,534
Pig Iron, "	112,687	1,683,051	1,114	510,107
Steel "	68,802	1,610,031		
Molybdenite, lb	6,500	400	3	81
Zinc Ore, tons	950	11,500	20	5,750
		7,002,499	4,032	2,097,365
Less value domestic iron ore smelted into pig iron, and domestic pig iron converted into steel		745,000		
Net value metallic output		6,257,499		
NON-METALLIC.				
Actinolite, tons	800	6,150	8	2,500
Arsenic, lb	1,600,000	48,000	(a)	(a)
Tile, drain, No	17,510,000	199 000	3,000	660,000
Brick, common, No	220,500,000	1,411,000		
" paving, No	4,210,565	42,000	40	19,110
" pressed and terra cotta, No	19,755,496	144,171	143	67,699
Building stone, rubble, etc	....	1,020,000	1,650	570,000
Carbide of calcium, tons	1,402	89,420	57	28,965
Cement, natural rock, bbl	77,300	50,795	62	18,550
" Portland, bbl	522,899	916,221	665	277,588
Corundum, lb	2,273,211	83,871	95	34,674
Feldspar, tons	8,776	12,875	66	10,250
Graphite, tons	1,923	17,868	38	12,855
Gypsum, tons	1,917	19,149	18	5,000
Iron pyrites, tons,	4,371	14,993	45	6,585
Lime, bush	4,300,000	617,000	890	248,000
Mica, tons	999	102,500	110	24,100
Natural gas	.....	199,238	107	55,000
Pottery	.....	171,315	135	36,400
Petroleum, imp. gal	18,185,592			
Illuminating oil, gal	7,720,866			
Lubricating oil, gal	2,765 677	1,431,054(b)	323	169,398
Benzine and naphtha, gal	902,847			
Gas and fuel oils and tar, gal	2,157,039			
Paraffin wax and candles, lb	2,433,127			
Salt, tons	62,011	344,620	198	76,154
Sewer pipe	....	191,965	86	38,508
Talc, tons	697	930	14	525
Total NON-METALLIC	.....	7,134,135	7,742	2,361,861
Add METALLIC	.....	6,257,499	4,032	2,097,365
	.....	13,391,634	11,774	4,459,226

(a) Included in gold. (b) Value of refined products and crude used for gas, fuel, etc.

One of the principal uses of statistics is to enable comparisons to be made, and so exhibi the progress of any given industry. In the following table is set out the value of the mineral

production of Ontario during each of the last five years, from which it will be seen that steady growth has characterized the industry during that period.

TABLE SHOWING MINERAL PRODUCTION 1898 TO 1902.

Product.	1898	1899	1900	1901	1902
Metallic—	$	$	$	$	$
Gold	275,078	424,568	297,861	244,443	229,828
Silver	51,960	65,575	96,367	84,830	58,000
Copper	268,080	176,237	319,681	589,080	680,283
Nickel	514,220	526,104	756,626	1,859,970	2,210,961
Iron Ore	48,875	30,951	111,805	174,428	518,445
Pig Iron	530,789	808,157	936,066	1,701,703	1,683,051
Steel			46,380	347,280	1,610,031
Molybdenite					400
Zinc Ore		24,000	500	15,000	11,500
Less value domestic iron ore smelted into pig iron, and domestic pig iron converted into steel.	1,689,002	2,055,592	2,565,286	5,016,734	7,002,499 745,000
Total Metallic	1,689,002	2,055,592	2,565,286	5,016,734	6,257,499

Product.	1898.	1899.	1900.	1901.	1902.
Non-Metallic—	$	$	$	$	$
Actinolite				3,126	6,150
Arsenic		4,842	22,725	41,677	48,000
Brick, common	914,000	1,313,750	1,379,590	1,530,460	1,411,000
" paving		42,550	26,950	37,000	42,000
" pressed and terra cotta	100,344	105,000	114,419	104,394	144,171
Building stone, rubble, etc	750,000	667,532	650,342	850,000	1,020,000
Carbide of calcium	55,976	74,680	69,300	168,792	89,420
Cement, natural rock	74,222	117,039	99,994	107,6 5	50,795
" Portland	302,096	444,227	598,021	563,255	916,221
Corundum			6,000	58,115	83,871
Feldspar			5,000	6,375	12,875
Graphite	6,000	16,179	27 030	20,000	17,868
Gypsum	4,000	16,512	18,050	13,400	19,149
Iron pyrites				17,500	14,993
Lime	308,000	535,000	544,000	550,000	617,000
Mica	7,500	38,000	91,750	39,780	102,500
Natural gas	301,600	440,904	392,823	342,183	199,238
Pottery	155,000	101,000	157,449	193,950	171,315
Petroleum products	1,970,534	1,747,352	1,869,045	1,467,940	1,431,054
Salt	278,886	317,412	324,477	323,058	344,620
Sewer pipe	93,717	138,356	130,635	147,948	191,965
Talc		500	5,000	1,400	930
Tile, drain	225,000	240,246	209,738	231,374	199,000
Total Non-metallic	5,546,875	6,361,081	6,733,338	6 814,352	7,134,135
Add Metallic	1,689,002	2,055,592	2,565,286	5,016,734	6.257.499
Total production	7,235,877	8,416,673	9,298,624	11 831,086	13,391,634

For an exact comparison deductions from the value of the metallic output similar to those made from that for 1902 should be made in the case of the previous years, but as it is the table tells a story of constant, even notable, advance. An increase of 87 per cent. in five years cannot but be considered satisfactory.

Another feature of interest is the growing list of minerals produced in the Province. Ontario contains within her borders a wide and varied range of mineral substances utilized in the industries of modern life, and one by one those formerly lying dormant are being sought out and brought into use. For example, the metallic products in 1898 numbered six, while in 1902 they were nine ; zinc ore and molybdenite having meanwhile been added, and the manufacture of iron ores having been brought to the steel-making stage. In 1898 16 non-metallic minerals and products stood at the credit of the mines and works of the Province, while in 1902, by the

addition of actinolite, arsenic, paving brick, corundum, feldspar, iron pyrites and talc, the list had grown to 23. Nor are these additions unimportant Of non-metallic substances alone not raised in 1898, $208,819 worth were produced in 1902, and several of them give promise of providing material for industries of considerable extent.

Gold and Silver.

The yield of the precious metals in Ontario has been for some years falling off. In 1902 the production of gold was 13,625 ounces of bullion worth $229,828, as against 14,293 ounces worth $244,443 in 1901. The output of gold reached high-water mark in 1899, when 27,594 ounces of bullion were obtained, having a value of $424,568. The following table covering the last five years gives the principal features of interest in connection with the gold-mining industry.

GOLD MINING 1898 TO 1902.

Schedule.	1898	1899	1900	1901	1902
Mines worked, number	17	15	18	11	20
Ore treated, tons.	57,895	59,615	46,618	54,336	48,544
Gold product, oz.	16,261	27,594	18,767	14,293	13,625
Gold value, $	275,078	424,568	297,861	244,443	229,828
Men above ground, number	296	307	412	305	341
Men under ground, "	284	356	338	288	385
Wages paid for labor, $	290,919	324,024	350,694	287,409	343,984

Statistics do not give anything but results, and gold mining in Ontario cannot fairly be judged by the above record. As will be seen, in four years out of the five included in the table, the amount paid out as wages for labor exceeded the value of the gold obtained. If all the mines worked during the year had been fully developed properties yielding bullion at the height of their capacity, the industry might be confidently set down as an unprofitable one. But this was far from being the case. At least six of the properties reporting to the Bureau had not reached the producing stage, and in a considerable proportion of the remainder the bulk of the labor was expended in opening up the mine and in other preliminary work. In the Lake Manitou region, Rainy River district, there has been a revival of interest due to the opening of the Big Master and other mines, and in other sections of the Lake of the Woods country signs of improvement are discernible. The Sultana, Mikado and Black Eagle mines worked their stamps for a portion of the year only.

Meanwhile, in eastern Ontario the Belmont mine continues to show what can be done by skilful management on large veins of free-milling ore and with cheap motive power. A water power two miles away has been developed and by means of compressed air the power is conveyed to the mine and made to operate practically all the machinery, thus affecting an important saving in the item of fuel. During the year the Belmont mine passed into the control of the Belmont Gold Mining Company, the parent concern being the Cordova Exploration Company. It is proposed to increase the crushing capacity by 30 stamps, making 60 in all, for which there is ample power and quartz. At Deloro the Canadian Goldfields Limited has not been producing gold since the first quarter of 1902, but considerable sinking and exploring have been done. The arsenic works continue in operation. A short distance off the Atlas Arsenic Company began recovering bullion towards the close of the year, but have not as yet commenced the manufacture of arsenic.

The producing gold mines in 1902 were the Canadian Goldfields Limited, Atlas Arsenic Company, Belmont, and Cook Land Company's, in Eastern Ontario ; the Sultana, Mikado and

Black Eagle, on Lake of the Woods ; the Big Master and Twentieth Century, in the Manitou District ; the English River Gold Mining Company, Sturgeon Lake ; the Sakoose, near Dyment Station, and the Grace in the Michipicoton Mining Division. At the close of the year stamp mills were being installed at the Elizabeth mine near Atikokan Station and at the Manxman in the Michipicoton Mining Division.

ANGLO-CANADIAN GOLD ESTATES, LIMITED.

The license of occupation granted to the Anglo-Canadian Gold Estates, Limited, conferring on the company the exclusive right of prospecting for minerals in certain areas of land in the Rainy River District which required the company to expend in exploration and mining not less than $120,000 in three years expired 31st December, 1902. The obligations imposed by the license as to expenditure were fully met by the company, but the latter found the time too short to thoroughly examine all the territory, and accordingly applied for an extension of time so far as block 4, otherwise the Dick and Banning timber limit, south of Calm Lake, was concerned. An additional year for this purpose was accordingly given, on the company agreeing to expend $30,000 over and above the amount provided in the license. One of the deposits discovered by the company has been developed into the Elizabeth gold mine, which has commenced turning out bullion since the beginning of 1903. Speaking of the operations of the company during 1902, Mr. Alan Sullivan, C.E , the manager, states that they consisted in the partial prospecting of the areas still covered by the license of occupation, in the development and equipment of the Elizabeth mine, and the partial development of the Lake Sturgeon properties. While no discoveries of marked value had been made, the work done was sufficient to show that it was impossible to thoroughly cover all the ground in the time at the company's disposal, the surface of the rock being in most places heavily covered with soil and timber, and the solid outcrops difficult to locate and investigate. On the south and southwest side of Calm lake float hematite had been found, but so far it had not been encountered in place except in the form of small lenses and deposits of no commercial value. This area, however, appeared to call for much closer work than had yet been done upon it, hence the company's application for longer time to enable this to be done.

The Elizabeth mine, Mr. Sullivan continues, has so far justified the expectation that it would prove a profitable property to operate, and the system of diamond drilling which preceded development had been of much assistance in subsequent work. The lode is developed by shafts, winzes and levels to a depth of 280 feet and the gross amount of ore exposed to date (10th February, 1903) was about 20,000 tons. The width of the stopes varies from 4 to 12 feet, and while there are some rich lenses and chutes of quartz in which the values rise to $40 and $50 a ton, the average value may be taken at from $8 to $10, which will probably prove the ruling value of ore in that field. Surface work has proved the existence of other payable lodes, but so far these have only been tested in a preliminary way, the main object being to prove the mine a profitable proposition.

Late in 1902 a 10-stamp mill was purchased and a small building erected at the mine with room for 5 stamps additional. Construction began in November and finished in January. On 5th February the mill went into commission, and worked very satisfactorily. It was expected to crush 25 to 30 tons daily. The stamps weigh 1050 pounds each and drop 90 times a minute, the height of drop being about 8 inches. A Gates No. 3 crusher and two Frue vanners with 6-foot belts are installed. The mill is connected with the main shaft by a tramway 350 feet long with a grade to the mill of 1 per cent., the cars dumping directly over the grizzly into the crusher. The innovation of driving the cam shaft direct from the mill engine appears to work very satisfactorily, and there being a separate engine for the crusher no trouble is experienced from

the variation of load. Power is supplied from main boiler house by a 3-inch steam main laid along the tramway, thus saving the use of fireman for mill boiler. The mill is in charge of Mr. Alex Cotter, late mill foreman and head amalgamator at the Sultana mine, his assistant being Mr William Gale, also late of the same mine. Two men only are required in the mill by day, and one at night.

The compressor capacity is 6 drills, furnished by one Rand and one Ingersoll-Sargeant machine. The boilers give 140 horse power from two locomotive type, one Robb Economic and one Cooper return tubular.

All underground work is in charge of Capt. W. H. Johns, recently underground captain of the Stanley mine, Idaho Springs, Colorado.

It is expected that a force of 35 to 40 men will be sufficient for the ordinary working of the mine, this is to be exclusive of those employed in prospecting and other exploratory work. Buildings to comfortably accommodate 50 men have been erected and good roads have been graded from Rice Lake to the mine.

In road building, dams, landings, docks, etc., a sum of $2,194 has been spent by the Company, the only assistance received from the Government towards this expense being a grant of $400 in 1902. The total expenditure of the Company in the district up to December 31 1902 was $146,809.

On one of the company's Sturgeon Lake locations further stripping and trenching was done and a test pit was put down 30 feet. The pay chute is 500 feet long by 3 feet 6 inches wide, with an average value of $12. It has yielded some remarkably fine samples of coarse gold, and the test pit proved its continuity so far as it went. Another property owned by the company adjoins that now being developed by the Jack Lake Mining Company, and the recent favorable work of the latter leads to the impression that the company's location may be of considerable value.

Development in the Sturgeon Lake district is greatly handicapped by the cost of freighting from the Canadian Pacific Railway, which may be estimated at $40 to $60 a ton. This almost prohibitive cost might be largely reduced by building small and inexpensive tramways across the portages and placing barges on the intervening lakes—a work to which the mine owners would no doubt contribute.

The amount expended by the Anglo-Canadian Gold Estates during 1902 on the lands comprised in their license of occupation was $68,877, of which the principal items were, plant $10,898, development $18,017, buildings $4,027, board $8,316, stores $5,957, management $3,715, etc.

Mr. Sullivan expresses the opinion that should the operations of the company prove sufficiently and reasonably profitable, they will do much towards a reinstatement of the field in the eyes of the British investing public.

The claim of silver to be considered a precious metal is growing less tenable as the price continues to fall year by year. The bulk of the world' output of silver now comes from mines worked for lead, copper and other metals, the silver itself being merely a by-product. In the deposits west of Port Arthur, Ontario possesses some of the comparatively few silver mines which are still operated for the sake of that metal alone. The Consolidated Mines Company of Lake Superior, Limited, worked the West End mine during the year for about eight months. The mill was dismantled in September, and additional stamps installed. The property was generally improved and a large compressor plant put in. The Big Master gold mine on Lake Manitou was operated by the same company.

The table below gives statistics of silver mining for the last five years:

SILVER MINING, 1898 TO 1902.

Schedule.	1898.	1899	1900.	1901.	1902.
Ore raised .....tons	6,600	8,000	12,500	11,000	6,250
Ore stamped..... "	5,600	8,000	8,000	7,560	6,250
Bullion product..... oz.	86,600	105,467	160,612	151,400	96,666
Value of bullion ..... $	51,960	65,575	96,367	84,830	58,000
Wages paid for labor..... "	28,430	29,000	24,000	29,500	36,000
Average workmen above ground...No.	32	23	20	30	25
Average workmen below ground... "	27	17	30	35	25

Nickel and Copper.

Nickel continues to head the list of Ontario minerals in point of value of output, and during the past year materially widened the gap between itself and pig iron, its nearest competitor. Acccording to the returns made to the Bureau of Mines, the nickel contents of the mattes produced by the several companies operating the copper-nickel ores of the Sudbury region aggregated 5,945 tons, an increase of 42 per cent. over the output of 1901, until then the largest on record. The three producing companies were the Canadian Copper Company, Copper Cliff, the Mond Nickel Company, Victoria Mines, and the Lake Superior Power Company of Sault Ste. Marie, whose mines and smelters are situated in the township of Creighton. Some apprehensions were expressed when in the early part of 1902 a consolidation took place by which the Canadian Copper Company's mines and smelters and all the facilities for refining nickel in the United States were taken over by the International Nickel Company, which also acquired certain nickel lands in New Caledonia, lest the effect should be prejudicial to the development of the industry in Ontario, either by curtailing the output in order to keep up prices, or by working deposits in New Caledonia instead. In point of fact, a general slackening up of operations took place by the Canadian Copper Company (which is still maintained as a separate organization) shortly after the combination was formed, and it was not until late in the season that work on the old scale was resumed. Notwithstanding this fact, the nickel output was the largest yet reported, the other companies more than making up for the falling-off occasioned by the temporary closing down of the Copper Company's works. Another cause which doubtless contributed to swell the output was the fact that a large proportion of the ore smelted by the Copper Company was taken from the Creighton mine, a deposit richer both in nickel and copper than the average of the district.

The quantity of ore raised was considerably less than in 1901, being 269,538 tons as against 326,945 tons, and the quantity smelted was likewise less, having fallen from 270,380 tons to 233,388 tons, the reduced scale of operations adopted by the Canadian Copper Company being reflected in these figures. In the subjoined table are given comparative statistics of the nickel-copper industry for the last five years:

NICKEL-COPPER MINING, 1898 TO 1902.

Schedule.	1898.	1899.	1900.	1901.	1902.
Ore raised .....tons	123,920	203,118	216,695	326,945	269,538
Ore smelted ..... "	121,924	171,230	211,960	270,380	233,388
Ordinary matte produced ... "	21,101	19,109	23,336	29,588	24,691
High-grade matte produced ..... "	.....	106	112	15,546	13,332
Nickel contents ..... "	2,783⅜	2,872	3,540	4,441	5,945
Copper contents ..... "	4,186¾	2,834	3,364	4,197	4,066
Value of nickel ..... $	514,220	526,104	756,626	1,859,970	2,210,961
Value of copper ..... "	268,080	176,236	319,681	589,080	616,763
Wages paid ..... "	315,501	443,879	728,946	1,045,889	835,050
Men employed..... ..No.	637	839	1,444	2,284	1,445

The above figures are exclusive of those copper mines whose ores do not carry nickel. For the most part these mines are situated in the territory north of Lake Huron, where the Massey Station, Rock Lake, Superior and other mines are being opened. The Rock Lake mine produced a quantity of concentrates last year which were shipped to the United States to be smelted. West of Lake Superior the Tip-top mine is also undergoing development. There has not been much activity in the Parry Sound copper region during the past year. The production of the purely copper mines being as yet on a small scale, their statistics have hitherto been given along with those of the copper-nickel mines. It now appears desirable to present them in separate form, as follows:

NON-NICKELIFEROUS COPPER MINES, 1902.

Schedule.	
Ore raised.....tons....	21,800
Copper in ore, estimated..... "	794
Value copper in ore, estimated .....$	63,520
Concentrates produced .....tons....	720
Value concentrates.....$	28,082
Men employed.....No	287
Wages paid .....$	137,859

In order to arrive at the total production of copper, it is necessary to take into account the output from both classes of mines, thus:

TOTAL PRODUCTION OF COPPER IN 1902.

Schedule.	Tons.	Value.
		$
Copper in nickel-copper matte	4,066	616,763
do in purely copper ores.....	794	63,520
Total	4,860	680,283

One value of a mining industry, as of any other kind of industry, is the part which it plays in affording profitable employment to labor, no less than to capital. The task of extracting useful substances from the earth's crust and making them subservient to the wants of man is one involving much toil of human muscle as well as of machinery. The force of miners and workmen required to produce the nickel and copper mined in Ontario, and the amount paid out to them in wages during the period 1898 to 1902 were as follows:

LABOR EMPLOYED IN NICKEL AND COPPER MINES.

Year.	Total Workers.	Total Wages.	Average Wages.
		$	$
1898.	637	315,501	495 29
1899	839	443,879	529 05
1900.	1,444	728,946	504 81
1901.....	2,284	1,045,889	457 92
1902.....	1,732	972,909	561 72

During the eleven years, 1892 to 1902 inclusive, the returns made to the Bureau of Mines how that a total of 1,666,336 tons of ore have been raised from the nickel-copper mines of the Sudbury region, of which 1,478,810 tons have been smelted. The resulting matte contained a

total of 32,150 tons nickel and 31,746 tons copper. Valued at the selling price of the refined metals the nickel was worth about $26,000,000 and the copper $8,000,000, a total contribution to the world's stock of these metals of $34,000,000.

During the year the Lake Superior Power Company's smelter at the Gertrude mine, Creighton township, was blown in, and a considerable quantity of low-grade matte produced. The Mond Nickel Company operated pretty steadily during the year, turning out Bessemerized matte high in metallic contents, which is shipped to England to be refined. Recent accounts state that the Mond refining method has been found dangerous to the health of the workmen employed, on account of the poisonous fumes generated during the process, and that the works have been shut down in order that a remedy for this defect may be applied. The Canadian Copper Company's matte is now all re-treated at the Ontario Smelting Works, Copper Cliff, where the ordinary grade matte is re-smelted and concentrated to a matte containing about 40 per cent. nickel and 25 per cent. copper, which is then exported to the United States for final treatment and separation of the metals.

Iron Ore, Pig Iron and Steel.

The iron ore production of 1902 was much in advance of that for 1901, being 359,288 tons worth $518,445 as compared with 273,538 tons valued at $174,428. Following are statistics of iron ore mining for the last five years :

Iron Ore Mined, 1898 to 1902 :

Schedule.	1898.	1899.	1900.	1901.	1902.
Ore raised .. ..tons....	27,400	16,911	90,302	273,538	359,288
Value of ore .....$	48,875	30,951	111,805	174,428	518,445
Men employed . .....No	100	87	439	360	338
Wages paid for labor. .....$	26,700	16,463	107,583	231,039	228,534

Of the number of workmen engaged in the industry last year 82 were employed under ground and 306 above ground. The ore mined consisted of 342,904 tons hematite, and 16,384 tons magnetite.

The recent history of iron mining in Ontario really dates from the discovery and opening of the Helen mine in the Michipicoton Mining Division, the first ore from which was shipped in 1900. Previous to the inauguration of the blast furnace at Hamilton in 1896 no pig iron was made in Ontario for many years, and consequently there was no home demand for iron ore. A generation ago a considerable business was done in the mining of ore, chiefly magnetite, in eastern Ontario, and exporting it to the United States. During the 20 years from 1869 to 1888 a total of 524,511 tons of iron ore, valued at $1,314,357, was so exported, but the American duty of 75 cents per ton practically put a stop to the trade, the exports falling in 1894 to 618 tons, and ceasing altogether the next year. From 1888 to 1896 inclusive, only 58,031 tons of iron ore were mined and exported, but in the latter year the revival of the smelting industry brought about the resumption of mining, and in the four years from 1896 to 1899 inclusive, the product of Ontario mines amounted to 62,351 tons. In 1900 the Helen mine began producing ore, and for the three years, 1900 to 1902 inclusive, the total yield of ore was 723,128 tons, of which by far the larger proportion was Helen ore.

The output from the Helen mine in 1902—taking the shipments as equivalent to the yield —was 334,231 short tons. Of this quantity 232,507 tons were shipped to Lake Erie ports in the United States, and 101,724 tons to the furnaces at Midland and Hamilton, Ontario. Notwithstanding the inclusions of pyrite which are found in the ore body, the mine appears to be improving in depth, and there is little doubt that it contains a very large reserve of good ore.

Four mines in eastern Ontario produced an aggregate of 23,057 tons of ore, some of which went to furnaces in this Province and some to furnaces in Quebec. One of these was the Radnor mine, owned by the Canada Iron Furnace Company, and recently opened in the township of Grattan, Renfrew county. The ore is magnetite of fair quality, and the indications seem to promise a large deposit. So far the product has been taken to the company's smelters at Radnor Forges, Quebec, but if the expectations formed of the deposit are realized, arrangements may be made by the company to utilize the ore in this Province, either at the Midland furnace or at some point nearer the mine. Other iron ore prospects in the neighborhood are being tested by the same company.

Besides the Helen and Radnor mines already mentioned, the following properties were worked during the year, all in the county of Hastings · the Moore, by Mr. Arthur Coe, Madoc ; the St. Charles, by Stephen Wellington, Madoc, and the Mineral Range, by the Mineral Range Mining Company, L'Amable Station. From the Breitung mine, on the Algoma Central railway, north of Sault Ste Marie, a small quantity of ore was raised in the course of development work.

PROSPECTING FOR ORE.

The activity in exploring for iron ores spoken of in last year's Report has continued without abatement. Some disappointment has been expressed that up to the present comparatively few deposits of workable ore have been found in the iron ranges of northern and northwestern Ontario, the ascertained extent of which is very great. Allowance must however be made for the difficulties of exploring in the rough country through which the ranges run and the obstacles interposed by the covering of soil and timber. In addition to this, experience on the analogous ranges south of lake Superior proves that large surface outcroppings of ore will be of infrequent occurrence, and that for the most part prospecting must be carried on by the diamond drill. The iron formations in the Michipicoton region have, perhaps been more carefully and systematically explored than in any other district, and several bodies of hematite in addition to the Helen mine have been located, notably those at the Josephine location and Brant lake. American capitalists have for considerably over a year been prospecting for iron ore on the shores of Steep Rock lake on the line of the Canadian Northern, where numerous boulders of first-rate hematite occur, and though borings have given encouraging indications, no important body of ore appears to have yet been struck. Messrs. Hille of Port Arthur and Williams of Kingston have been conducting explorations in the neighborhood of Arrow lake on the Port Arthur, Duluth and Western railway, where the Mesabi iron formation extends from Minnesota into Ontario. Here they have acquired the old Paulison locations laid out many years ago, and have been testing them with the diamond drill.

In the Lake Temagami region outcrops of iron ore banded with jasper were some years ago found by D. O'Connor of Sudbury, who surveyed a number of locations on the northeast arm and elsewhere. Owing to the lands lying within the boundaries of the Temagami Forest Reserve, no title could be procured until recently, when regulations were promulgated authorizing prospecting for minerals and working deposits in the reserve on conditions which will protect the timber, principally pine, to safeguard the magnificent forests of which the reserve was set apart. Mr. O'Connor has interested other parties in these locations, including Mr. T. B. Caldwell of Lanark, and it is understood steps will shortly be taken to test the deposits. The banded ore is mainly magnetite, but hematite has also been found.

In the township of Hutton, northwest of Lake Wahnapitae, a range of rocks containing magnetite with jasper was discovered some two or three years ago. Further exploration on the range has located a body of magnetic ore said to be of considerable dimensions and good quality, so far as freedom from impurities goes, but not especially high in metallic contents. Two diamond drill holes have been bored to a depth of 250 feet, but the results of the borings have

not been made public, except that considerable ore has been found containing no injurious percentage of sulphur. A good deal of stripping, test-pitting, cross-cutting, etc., has been done, and a road built into the property from McDonald's lumber camp. In addition, a complete magnetic and geological survey has been made under the direction of Prof. C. K. Leith, of the University of Wisconsin and United States Geological Survey. A short paper on the deposit by Dr. Leith in another portion of this volume will be read with interest. The ore outcrops on the surface in a number of places, and it is believed the shipping ore will average about 60 per cent. metallic iron and about .070 per cent. phosphorus. In some places it is very lean, while in others it runs as high as 64 per cent. iron. The work of all kinds done in 1902 cost about $100,000. The property is owned or controlled by Mr. Chase S. Osborne of Sault Ste. Marie, Mich. Much interest has been aroused by the discovery, not only among local prospectors, but also among American ironmasters, and the neighborhood is likely to be the scene of very active prospecting as soon as the season opens. Indeed, a number of prospectors, undeterred by the concealing mantle of snow, to say nothing of the cold, have remained at work all winter, using the dip needle as their guide.

Unless all legitimate inferences drawn from the similarity of geological conditions in the Ontario iron ranges to those of the Mesabi and Vermilion regions south of the line are doomed to be proven fallacious, there is good reason to believe that this Province contains an immense quantity of iron ore, probably much greater than has until recently been suspected. Whether this is the case, or whether as certain authorities are inclined to think, the severer glacial erosion to which some of the Ontario ranges have been subjected, as compared with those south of the line, is an inauspicious feature of sufficient moment to neutralize the otherwise favorable conditions for large ore bodies, is not likely to remain many years in doubt. Should the question be decided favorably, the iron mining industry of the Province will without doubt, take on very large proportions.

That part of the iron and steel manufacturing business in the United States which has so far succeeded in remaining outside of the United States Steel Corporation, is beginning to feel that the raw materials upon which its existence absolutely depends, are rapidly passing into the control of their gigantic competitor. Competent authorities state that of the ore reserves in the Mesabi, Gogebic, Vermilion and other known ranges of the Lake Superior district, supposed to contain about 1,000 millions of tons, the United States Steel Corporation now owns 900 millions, and its domain is being rapidly extended. The boundaries of these ranges are now well defined, and there is little or no probability of similar ones being discovered in the region which has conferred upon its owners unquestioned supremacy in the iron trade of the world. New deposits may be found and old ones extended, but already the drain upon this, the richest iron field the world has ever known, is becoming so large as to cause those interested to look into the future with some apprehension. Of about 35 million (long) tons of iron ore produced in the United States last year, some 27 and a half million tons came from the mines of the Lake Superior region; by far the largest quantity that has ever yet been raised there, and the probability is that the present year will see this output exceeded. Before these tremendous and increasing drafts, even the large reserves still extant, will at no distant date disappear, and long before that period arrives the iron ores of Ontario will be in strong demand. It may well be doubted whether other iron ranges equal say to the Mesabi in quality as well as extent of ore bodies, are likely to be again discovered, and it appears certain that the iron smelters of the coming generation will have to be less fastidious as to the quality and richness of their ores than those of the present day. However this may be, the iron ranges of Ontario, provided the ore is there, are well fitted by their situation to take the place of the Minnesota and Michigan ranges in furnishing the necessary supplies for this essential industry. Tributary, practically all of them, to the great lakes, the same system of boat transportation,

with its economy in the matter of freights, can be applied to the carriage of their ores as is now in such highly organized operation south of the line. It may be hoped, however, that when the time comes for mining iron ore on a large scale in Ontario, the demand for pig iron and steel for use in our own Province and country will have correspondingly increased, and that we may see the ore smelted into pig, the pig converted into steel, and the steel worked up into manufactured articles—all within the bounds of Ontario, or at any rate of the Dominion of Canada.

The pig iron produced by the blast furnaces of the Province in 1902 was rather less in quantity and value than in 1901, the figures being 112,687 (short) tons valued at $1,683,051, as against 116,370 tons worth $1,701,703. The chief reason for the falling-off was the great scarcity of coke which prevailed during the whole of the year and which is still an acute condition in this and other industries.

In the following table are given statistics of the pig iron smelting business since it again became active in 1896:

Pig Iron and Steel Production, 1896 to 1902.

Schedule.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	Totals.
Ontario ore smelted.....tons	15,270	2,770	20,968	24,494	22,887	109,109	92,883	288,381
Foreign ore smelted..... "	35,868	34,722	56,055	85,542	77,805	85,401	94,079	469,472
Scale and mill cinder..... "	5,883	5,350	8,614	10,004	13,092	12,676	14,187	69,806
Limestone for flux..... "	8,657	9,473	13,799	25,301	24,927	51,452	58,885	192,494
Coke for fuel..... "	30,348	27,810	50,407	74,403	59,345	113,119	111,390	466,822
Charcoal for fuel.....bush	.....	.....	.....	.....	955,437	915,789	968,623	2,839,849
Pig iron product.....tons	28,302	24,011	48,253	64,749	62,386	116,370	112,687	456,758
Steel product ..... "	.....	.....	.....	.....	2,819	14,471	68,802	86,092
Value of pig iron ..... $	353,780	288,128	530,789	808,157	936,066	1,701,703	1,683,051	6,301,674
Value of steel..... "	.....	.....	.....	.....	46,380	347,280	1,610,031	2,003,691
Workmen employed ..... No.	125	130	130	200	419	580	1,114	.....
Wages paid..... $	47,000	40,000	61,476	79,869	97,915	274,554	510,107	1,110,921

The blast furnaces in operation during 1902 were those of the Hamilton Steel and Iron Company, Limited, at Hamilton, the Canada Iron Furnace Company, Limited, at Midland, and the Deseronto Iron Company, Limited, at Deseronto. The first two use coke as fuel, and the third charcoal, its product being sold in the home market mainly for making malleable castings and cast iron car-wheels.

At the Midland plant considerable work was done during the year in building wharves, filling in water frontages, etc., in preparation for an extension of the company's manufacturing business later on. The steel-making department of the Hamilton works is being enlarged by the addition of a new 35-ton open-hearth furnace which will about double the capacity for producing steel. This furnace should have an output of about 90 tons per day, and is being built by Alex. Laughlin & Company, engineers, Pittsburg. An addition is being made to the steel building with a view to going into the manufacture of steel castings. A continuous furnace is being installed in the steel mill building and the rolling facilities increased. At the blast furnace itself another blowing engine is being added to the pair at present in use. The furnace was being re-lined at the beginning of March 1903, but was expected to be again in blast about the end of that month.

The Algoma Steel Company's Bessemer steel plant at Sault Ste. Marie was in operation for part of the year, the product being steel rails. The company has so far purchased the pig iron required for supplying the steel works from Canadian and American furnaces, but is now building one charcoal furnace and one coke furnace, both of which are nearing completion. The dimensions of the charcoal furnace are 13 feet 6 inches by 70 feet, and its capacity will be 150 tons per day. The coke furnace is 15 feet 6 inches by 80 feet and will produce 250 ton-

of pig iron daily. The furnaces are equipped with seven Foote fire-brick stoves 18 by 89 feet in size, four blowing engines, each with a capacity of 13,000 cubic feet of air per minute, and one 3,000-h. p. Cahall vertical boiler plant. A 3-strand Heyl and Patterson pig-casting machine will receive the product of both furnaces, or the hot metal can be conveyed direct to the metal mixer at the steel works, and thence transferred to the converters as required. The unloading dock, which has a frontage of 1,400 feet and a depth of 295 feet, is equipped with a modern Hullett unloading machine by which the raw material is unloaded from the vessels and conveyed to the storage yard or direct to the stock bins, and the furnace accessories embrace the latest and most approved devices for economical operation.

The charcoal furnace will require charcoal from about 300 cords of hardwood per day. In order to supply this fuel kiln plants with a capacity of 150 cords per day have been built at Wilde and Searchmont stations on the Algoma Central Railway, and a retort plant near the rail mill. The kiln plants will consist of 56 kilns, 30 feet in diameter at the bottom, 28 feet at spring of arch, 14 feet high to spring of arch, and 5 feet to top of arch, each kiln holding about 65 cords of wood. Of these, 16 kilns are now completed at Wilde and 20 at Searchmont. When the plants are all in operation their output will be about 6,500 bushels of charcoal daily. A retort plant is also to be built having a capacity of 160 cords of wood per day, yielding about 8,000 bushels of charcoal. A fuller description of the style of retort is given in the Eleventh Report of the Bureau of Mines (pp. 99 and 100).

THE CRAMP STEEL COMPANY, LIMITED.

At Collingwood the works of the Cramp Steel Company, Limited, are being prosecuted with vigor. This company was organized in 1901 with a capital of $5,000,000, of which $2,000,000 is 7 per cent. cumulative preferred, and $3,000,000 common stock. The officers of the Company are: president, J. Wesley Allison, New York, N.Y.; secretary-treasurer, J. A. Currie, Toronto; directors, A. McLean Macdonell, Toronto; H. Prentiss Taylor, New York, N.Y.; Major Collins, Brazil, Indiana; Wm. Cramp and Chas. D. Cramp, Philadelphia, Pa.; J. Wesley Allison, New York, N.Y.; J. A. Currie, Toronto; Hon. Sir. Chas. H. Tupper, Vancouver, B.C. Mr. J. C. Royce, a graduate of the Massachusetts School of Technology, is superintendent and engineer.

The company was organized to erect a blast furnace, open-hearth steel plant and rolling mills, and has been given by the town of Collingwood an excellent site of some 80 acres, a portion of which fronts on the harbor, also a cash bonus of $115,000 and certain exemptions in the matter of taxation. Building was begun in the fall of 1901 but was not actively pushed until the spring of 1902. The buildings are substantially made of concrete, stone, steel and wood, all sheathed in heavy corrugated iron.

Contrary to the usual practice, the company has proceeded by erecting its open-hearth steel plant and steel finishing mills before putting up a blast furnace. In this way by procuring pig iron elsewhere the company will be able to supply their customers with steel while their own furnace is being built, and meantime will not be accumulating large stocks of pig iron. The steel plant and finishing mills, which front on the bay and alongside of which the Grand Trunk Railway runs, are approaching completion.

In a large stone building, 75 by 140 feet, are located the machine shop, forge and power, and electric light plants. The stone of which the building is constructed is a hard, gray limestone from the company's own quarry. In the southeast end is located the forge, which is designed for forging articles of the largest size; the equipment such as power-hammer, bolt-cutters, etc., is complete. The machine shop stands in the northeast corner, and contains two large screw-cutting engine lathes, one with a 20-foot bed, also a 36-inch planer, and a massive lathe, which swings 72 inches and weighs 20 tons, designed to turn the largest class of rolls.

There are also a large boring mill radial and other drills and necessary equipment. A 100-h.p. Atlas engine furnishes the power and also operates the electric light plant. The boiler plant consists of four large tubular boilers, each of 150-h.p. capacity. A railway switch serves the boiler house as well as the machine shop.

The rolling mill building adjoins the power house, and is 120 feet wide, including bays, and 210 feet long, with an additional building at the west end 70 feet long. It contains an 18-inch merchant bar mill and a semi-continuous 10-inch Belgian mill, besides two heating furnaces equipped with upright water tube boilers to utilize the waste heat, each developing 150-horse power.

The large train is designed to roll ingots 8 inches by 8 inches by 4 feet into billets and into bars round, square or flat, down to one inch. It will bloom the ingots from the open-hearth furnaces and will supply billets to the 10-inch mill. It will also roll angles, shafting, girders, street railway rails, mine rails, etc. The 10-inch mill will make small bars, bolts, rods and hoops in all shapes under 1½ inches. In both mills, the floors are provided with underground tunnels, where the heated bars, instead of passing over the floor, will pass in the tunnels out of sight, thus leaving the floor space clear. The 10-inch mill is supplied with looping devices, whereby bars can be carried from one side of the rolls to the end, thus permitting the mill to roll a bar 120 feet long at one pass. The large mill is driven by a 600-h.p. engine, built by Inglis & Co., of Toronto, in size 28 by 56 inches, non-condensing in type and with a 30-ton fly wheel. Steam is furnished b ythe waste heat boilers, supplemented by the boilers in the power house. The 10-inch train is operated by a belted 300-h.p. Atlas engine. Throughout the building are located shears and other appliances for cutting the material into lengths and delivering it on cars. A narrow gauge track runs into the building to deliver ingots from the open-hearth furnaces, whilst a wide gauge track runs along both sides of the building for delivering coa and receiving the finished steel.

The open-hearth plant, which consists of two 20-ton furnaces of the most modern design, is situated in a building 100 feet long, 100 feet wide and 30 feet high. The furnaces are of the straight line tapping type, the latest development in open-hearth practice. The regenerators for the furnace are by an ingenious method of construction placed under the charging platform, by which the checker-work of the regenerators is expected to be four or five times that in the old style. The charging platform is in rear of the furnace, and further to the rear are the gas producers which furnish producer gas for reducing the steel. These producers were built in Canada from designs by the company's engineer, and embody the latest improvements. They are water-sealed and will be charged from a top platform by an elevated railway trestle. Coal will be brought up in drop-bottom cars and dropped on this platform for charging, thus doing away with the expense of hoisting up coal to charge the producers, which is the usual practice.

Two large steel stacks, 90 feet high, made of heavy plate, on concrete foundations and lined with fire-brick, serve the two open-hearth furnaces. The casting pits in front of the furnaces are done away with. The casting ladle is handled by a 25-ton hydraulic crane, which swings in an arc of 180 degrees. Two other large swinging hydraulic cranes are located in front of the charging platform, one to handle the empty ladles and the other to strip the ingots. The machinery is actuated by hydraulic power, the pumps being situated in a separate building some distance away. Two large hydraulic rams furnish the necessary pressure, together with a 40-ton accumulator.

The plant is designed to produce about 120 tons of basic open-hearth steel per day, by the Thomas-Gilchrist method. The product will be high carbon nickel steel, high carbon spring and tool steel, mild steel of various grades down to soft rivet steel, and the finishing mills wil roll the product into any size required by machine shops, foundries or blacksmiths.

A company has been organized to manufacture 50 tons of wire per day, and has secured a site on land adjoining the Cramp Steel Company's works. The billets will be supplied by the latter company.

It is the intention of the Cramp Company to erect an iron blast furnace of 250 tons daily capacity on a site adjoining the lake shore during the summer of 1903.

PAYMENTS OUT OF IRON MINING FUND.

The Mines Act provides for payment of bounties on iron ore mined and smelted in the Province at the rate of $1 per ton on the metallic product therefrom, such payments however not to exceed $25,000 in any one year, and the rate to be subject to reduction according to the quantity of ore mined and smelted. Last year the full sum of $25,000 was claimed and the following table shows how the amount was distributed :—

Name.	Ore Smelted.	Pig iron product.	Bounty.
	Tons.	Tons.	$ c.
Hamilton Steel and Iron Company	78,409.6	43,693.29	20,280 20
Canada Iron Furnace Company	17,779.6	9,846.08	4,569 50
H. C. Farnum	604.8	303.28	140 75
A. W. Hawley,	39.0	20.57	9 55
Totals	96,833.2	53,868.22	$25,000 00

The rate of bounty payable for the last bounty year, which ended 31st October, 1902 was $0.4641 per ton of pig iron.

The yearly production of pig iron from ore eligible for this bounty and the amounts paid thereon, since the establishment of the Fund, have been as follows :—

Year.	Pig iron made.	Bounty paid.
	Tons.	$ c.
1896	4,000 00	4,000 00
1897	2,603.95	2,603 95
1898	8,647.19	8,647 19
1899	12,752.07	12,752 07
1900	6,737.80	6,737 80
1901	55,214.00	25,000 00
1902	53,868.22	25,000 00
Totals	145,823.23	$84,741 01

MOLYBDENITE AND ZINC ORE.

There was a small quantity of molybdenite raised in Ontario last year, amounting to 6,500 lbs, and having a value of $400. This is the first appearance of the mineral among the products of the Province. It was taken from a deposit in the township of Laxton by Mr. John Webber, Sherbourne street, Toronto, and his associates. Many deposits or shows of molybdenite have been brought to notice in Ontario during the last two or three years, since the demand for it became active, but upon very few of them has work enough been done to prove their extent or value. Molybdenite appears to be essentially "pocketty" in its manner of occurrence, and large bodies are exceptional. The value of the substance, however, is such that even a small deposit, if not too sparingly disseminated throughout a gangue rock difficult of separation, may well repay the cost of working it.

The zinc ore mined in 1902 came from a property in Olden township near Long Lake post office, worked by Messrs. H. Richardson and Sons of Kingston. Nothing was reported as produced from the Zenith mine, on the north shore of Lake Superior, which in previous years yielded more or less ore.

Actinolite, Graphite, Mica, Talc.

The hornblende variety of asbestos known as actinolite is found in considerable quantities in the County of Hastings. After being mined it is ground in attrition mills without destroying the fibre, and a proportion of mica is added to increase the "bond". It is then sold mainly for making roofing cement, for which purpose it is mixed with the proper percentage of coal tar, asphalt or roofing pitch. Usually, heavy tarred felt is first laid on the roof, after which the cement is laid on warm with a plasterer's trowel, and sand sifted over it. Roofs made in this way are said to be fire-proof and very durable, withstanding successfully extremes of cold and heat. Mr. Joseph James, of Actinolite, mines and grinds the mineral, and the Helena Mining Company, Cloyne, also began mining last year, their product going to the States for treatment. The total output was 800 tons, worth $6,150.

There are now three properties producing graphite in the Province; the Black Donald mine at Whitefish lake in the county of Renfrew, owned by the Ontario Graphite Company, Limited, of Ottawa; the McConnell mine in North Elmsley township on the Rideau canal owned by Rinaldo McConnell of Ottawa; and the Allanhurst property in the township of Denbigh, which has recently been opened up by Mr. J. G. Allan of Hamilton. Several other deposits have undergone preliminary development.

The graphite bodies found in Ontario are usually associated with crystalline limestones of Archæan age, and the mineral occurs in the amorphous and flake forms. Of the amorphous variety the only known large deposit is the Black Donald, flake being the more generally distributed form. Of crystalline graphite, such as occurs in Quebec associated sparingly with flake, little or none has been found in this Province.

A refinery at the Black Donald property was completed last year, and went into operation in July. The motive power is electricity generated by a water fall on the Madawaska river some two miles away. The works have a capacity of 15 tons of crude ore per day, and employ the wet concentration process, using large buddles. Flake graphite for crucible-making, is the leading product, and the amorphous kind is also made in varying proportions of carbon contents, for use as foundry facings and other purposes. The ore body at the Black Donald mine is of unusual size and excellence of quality. It has been followed under the bed of Whitefish lake for some distance.

Work was first done on what is now known as the McConnell graphite mine over 30 years ago. In 1872 a mill was erected at Oliver's Ferry for treating the product of the mine,[1] which however did not remain very long in operation. An effort was again made in 1893 by the late J. F. Torrance, of Montreal, to revive the property,[2] and a good deal of boring was done with the diamond drill, which showed the presence of a large quantity of graphite. Nothing permanent, however, came of the attempt. In 1901 Dr. R. A. Pyne, of Toronto, employed the Government diamond drill to good effect on lot 21 in the sixth concession of North Elmsley, and found extensive bodies of good quality graphite.[3] Mr. Rinaldo McConnell, of Ottawa, having obtained possession of adjoining lands, also tested his property with the government drill, and last spring began the work of mining. The graphite is of the flake variety, and occurs disseminated throughout the limestone. Works have been erected about two miles east of the mine for treating the ore, a small water power on the river Tay furnishing the necessary ower. A process has been tried, the principal features of which are crushing, screening, concentrating in pneumatic jigs, grinding or polishing between millstones, and buddling in small vats for final purification of the flake, which is then graded in revolving screens. The flake product is of high grade suitable for crucible stock. The refinery has a capacity of about 20 tons of ore per day.

[1] See description in 6th Report Bureau Mines, pp 35 and 36. [2] 3rd Report Bureau Mines, p. 96.
[3] 11th Report Bureau Mines, pp. 59, 60.

Work on the Allanhurst property in Denbigh began 19th November 1902, and a small quantity of graphite was taken out before the close of the year. The intention is to mine and sell the ore in the crude state.

The total output of graphite for the year was 1,923 tons valued at $12,855 in the crude form. The production for the last five years has been as follows :

Year	Tons	Value
1898	300	$ 6,000
1899	1,220	16,179
1900	1,802	27,030
1901	1,000	20,000
1902	1,923	12,855
Totals	6,245	$82,064

The output of mica in Ontario last year, as reported to the Bureau of Mines, was both in quantity and value much in excess of that for 1901, being 999 tons crude or rough-cobbed, valued in that condition at $102,500, as against 427 tons worth $39,780, the previous year. Prices were better than during the previous twelvemonth, and production, especially among the smaller operators, was correspondingly stimulated. Several new and promising properties were opened up in the Perth district, and some old ones overhauled. The great bulk of the yield, however, was from the Lacy and Hanlan mines of the General Electric Company, whose head office is at Schenectady, N. Y. The Lacy mine is a magnificent property, producing fine quality and large sizes of mica in great profusion. This company has established a new mica trimming works at Ottawa, employing about 200 hands, and treating the product of its own mines, as well as a good deal purchased from other operators. The demand for mica is at present strong, and the trimming works have orders ahead for all they can get. The principal consumers are the General Electric Company, and the Westinghouse Electric Company.

There is much talc in Ontario, and of considerable variety of form and composition. It is found in the counties of Hastings, Frontenac and Leeds, and in the district of Algoma, but for the most part the deposits remain unworked. If the paper-making industry develops on a scale commensurate with the abundance of the raw material in this Province, a large market should be developed for the product of the talc mines. Last year two deposits, one near Madoc and the other near Gananoque, produced together 697 tons valued at $930.

Building Materials and Clay Products.

The output of building and construction materials has for some years been steadily increasing, and the aggregate for 1902 was in excess of that for 1901, though in one item, that of common brick, there appears to have been a falling off. The following table gives the statistics of production for building stone, rubble, etc., lime, common brick, and pressed brick and terra cotta for the five years 1898 to 1902 :

PRODUCTION OF STONE, LIME AND BRICK 1898 TO 1902.

Material.	1898.	1899.	1900.	1901.	1902.
	$	$	$	$	$
Building stone, rubble, etc.	750,000	667,532	650,342	850,000	1,020,000
Lime	308,000	535,000	544,000	550,000	617,000
Common brick	914,000	1,313,750	1,379,590	1,530,460	1,411,000
Pressed brick and terra cotta	100,344	105,000	114,419	104,394	144,371
Totals	2,072,344	2,621,282	2,688,351	3,034,854	3,192,371

The item of stone in the above table includes not only stone quarried for building purposes, but also material crushed for road-making and use as flux in blast furnaces. A considerable business is done at points near the United States frontier in quarrying and breaking limestone for uses of this kind. Railway companies get out considerable stone at the convenient points along their lines for building bridges and other railway structures, among them being the Canadian Pacific Railway Company, which operates a granite quarry at Peninsula Harbor, and the Algoma Central Railway Company, which has also opened a quarry of fine red granite on the northeast quarter of section 9, Tarentorus township, within 8 miles of Sault Ste. Marie.

The principal producers of stone making returns to the Bureau for 1902 were: Estate of John Battle, Thorold ; Queenston Quarry Company, St. David's ; Empire Limestone Company, Sherkston ; Hughes Bros. and Bangs, Buffalo, N.Y. ; G. F. Webb, Hamilton ; Walker Bros., Thorold ; Amherstburg Quarry Company, Amherstburg ; Thomas Barnes, Hamilton ; Longford Quarry Company, Longford Mills ; Canada Iron Furnace Company, Midland ; J. W. Graham, St. Mary's : Credit Forks Quarry Company, Toronto ; T. Shea, Pembroke ; St. Mary's Quarry Company, St Mary's; J. Elliott, St. Mary's ; D. Robertson & Company, Milton ; J. Maloney, & Company, Puslinch : Spence Bros, Bruce Mines ; Lake Superior Power Company, Sault Ste. Marie ; Algoma Central Railway Company, and Canadian Pacific Company. The greater proportion of the product is limestone.

There was a small increase in the quantity of lime produced in 1902 as compared with 1901, but the increase in value was more marked. In 1901 the total was $550,000, and the average price per bushel 13.4 cents, while in 1902 the production was $617,000, and the average price per bushel 14.3 cents Very much of the lime in Ontario is the product of small kilns operated by farmers or farmers' sons, which only "burn" when lime is wanted, and which supply the limited local demand ; but for the larger and more regular supplies required by city markets, more expensive plants are necessary which are kept much more steadily in operation.

Among the largest producers of lime are H. Robillard Son, Ottawa ; Estate of J. A. Jamieson, Renfrew ; D. Robertson and Company, Milton ; A. Ballantyne, Galt ; J. Sclater, Downie ; Toronto Lime Company, Limehouse ; J. Gow, Fergus ; W. M. Cameron, Carleton Place ; Canadian Portland Cement Company, Strathcona ; Christie Henderson and Company, Guelph and Kelso ; Welland County Lime Works, Port Colborne, and the Empire Limestone Company, Sherkston.

The use of brick for building purposes is wide-spread in Ontario, and contributes much to the substantial appearance of both urban and rural dwellings. There is an abundance of clay suitable for the manufacture of red and white brick, mostly the former, in nearly all the settled parts of the Province. Last year the output of bricks seems to have been somewhat less than in the year before, being 220,000,000 valued at $1,411,000, as against 259,265,000 worth $1,530,460. The reduction in output was coincident with and may be partly attributable to an increase in cost, the average price having gone up from $5.90 per thousand, to $6.41 per thousand. No doubt the decided advance in cost of building materials, including brick, lime and lumber, together with the equally marked increase which has taken place in wages of all kinds, has acted as a restraint upon building operations throughout the Province.

The multitude of small brick-yards operated at a minimum of expense in the main supply the wants of village and rural communities, whose market is preserved to the local makers by reason of the heavy cost of transporting so weighty a material. but as in the case of lime the building trade of cities and large towns demands a source from which constant and large supplies may be procured. This has naturally led to a large development of the brick-making industry in the suburbs of those cities where suitable deposits of clay are to be found. In the immediate neighborhood of Toronto, for instance, are very many brick-yards, some of them equipped with plants of great capacity, which cater for the city trade. Several years ago a

number of these were deserted and idle, and others were only working part of the time, but the resumption of building activity which took place two or three years ago, has again provided a ready outlet for their product. Most of these work surface deposits or banks of clay, but at the Don Valley Brick Works, shales of the Hudson River formation are quarried from deep open workings by means identical with those employed in mining operations at a similar depth. These shales are ground and made into pressed brick. Similarly, shales of the Medina series are excavated for pressed brick and terra cotta at Milton, Campbellville and elsewhere.

Large manufacturers of common brick and drain tile, reporting their product to the Bureau, are the following: John Price, Toronto; C. Mason, Carleton West; R. Rattledge, Carleton West; Bell Bros., Toronto; J. Logan, Toronto; Morley & Ashbridge, Toronto; W. West, Penetanguishene; Lake Superior Power Company, Sault Ste Marie; Mrs. H. Ollmann, Hamilton: King & Mulligan, Harbord; Ponsford & Freek, St. Thomas; Crawford Bros . Hamilton; R. Holton, Drew; Merkley Bros., Casselman; G. Frid & Company, Hamilton ; Odell Bros., Ottawa; T. Fanning, Hamilton; Wakefield Brick Company, Carleton West; Brown Bros., Mount Dennis; J. Pears, Davisville; Ottawa Brick Company, Ottawa; Waide Bros., London; Curtis Bros., Peterborough; S. Allen, Norwich; Baker Bros., Casselman; G. S. Townsley, Carleton West; Bechtel Bros., Waterloo; Ontario Brick Company, Toronto Junction.

Manufacturers of pressed brick are the Toronto Pressed Brick and Terra Cotta Works, Milton; Milton Pressed Brick Company, Milton; Don Valley Brick Works, Toronto, James Packham, Brampton.

Other clay products consisting of drain tile, paving brick, sewer pipe and pottery, were made during the year to the value of $604,280, a slight decrease from 1901. The output of these articles during the last five years was as follows :

DRAIN TILE, PAVING BRICK, SEWER PIPE AND POTTERY 1898 TO 1901.

Product.	1898	1899	1900	1901	1902	Total.
	$	$	$	$	$	$
Drain tile	225,000	240,246	209,738	231,374	199,000	1,105,358
Paving brick	.....	42,550	26,950	37,000	42,000	148,500
Sewer pipe	93,717	138,356	130,635	147,948	191,965	702,621
Pottery	155,000	101,000	157,449	193,950	171,315	778,714
Totals	473,717	522,152	524,772	610,272	604,280	2,735,193

The principal manufacturers of sewer pipe in the Province are the Ontario Sewer Pipe Company, Limited, of Toronto, whose works are at Mimico, and the Hamilton and Toronto Sewer Pipe Company, Limited, with manufactory at Hamilton; and of pottery, J. Taylor, Port Hope; John Davis & Son, Davisville; Belleville Pottery Company, Belleville; F. Van Andel, Cornwall.

Portland and Hydraulic Cement.

The use of cement has now become very general, and its manufacture has developed with extraordinary rapidity within the last ten years, both in Europe and America. Notwithstanding that the lasting qualities of cement had been fully proven by the success with which structures built in Roman times have resisted the wear and tear of the elements down to the present day, until a few years ago it occupied but a secondary place on the architect's or building contractor's list of materials. As it grew in favor, however, and as the raw ingredients for its manufacture were found to be wide-spread, it sprang by leaps and bounds into a position almost of pre-eminence in the building world. In the United States the production of Portland cement has developed with unexampled speed, the output increasing from 454,813 barrels in

1891 to 12,711,,225 barrels in 1901. Affected as our industries and social economy necessarily are by developments to the south of us, and marl and clay being plentiful in Ontario, it was to be expected that cement-making would soon spring into being here. As a matter of fact, the growth of the cement manufacture in Ontario has been nearly as rapid as in the United States.

The first Portland cement in this Province was made in 1891; in 1897 244,876 barrels were produced, and last year the output was 522,899 barrels. Hydraulic or natural rock cement has been made in Ontario for many years, but in spite of the fact that it is a useful article, probably as efficient for many purposes as Portland cement, and is much cheaper in price, the demand for it is less than for Portland cement, and the yearly output is not increasing.

To some extent the lessened production of natural rock cement is attributable to the wet season of 1902, which was an unfavorable one for putting up farm buildings, the natural rock product going very largely to farmers for barn floors, foundations, etc., but in part also to the abnormal conditions existing in the prices of Portland cement during the early months of the year. The Cayuga Lake Portland Cement Company, of Ithaca, N.Y., put in a tender to supply the city of Hamilton with 25,000 to 30,000 barrels Portland cement for the low price of $1.60 per barrel. Canadian Portland cement companies followed suit, and the price of Portland was reduced to a level at which large consumers preferred it to natural rock. Since that time Portland cement has gone up in price again, the Cayuga Lake Company above mentioned having taken the city of Hamilton contract for 1903 at $2.16 per barrel, consequently the pressure upon the makers of natural rock cement is less severe, and the margin in price being greater, $1 or more per barrel, the prospects are for a better business in the cheaper article during the present year.

In the following table are given statistics of cement manufacture since Portland cement began to be made in this Province:

PRODUCTION OF CEMENT IN ONTARIO 1891 TO 1902.

Year.	Natural Rock.		Portland.		Total.	
	Bbl.	Value.	Bbl.	Value.	Bbl.	Value.
		$		$		$
1891	46,178	39,419	2,033	5,082	48,211	44,501
1892	54,155	38,580	20,247	47,417	74,402	85,997
1893	74,353	63,567	31,924	63,848	106,277	127,415
1894	55,323	48,774	30,580	61,060	85,903	109,834
1895	55,219	45,145	58,699	114,332	113,918	159,477
1896	60,705	44,100	77,760	138,230	138,465	182,330
1897	84,670	76,123	96,825	170,302	181,495	246,425
1898	91,528	74,222	153,348	302,096	244,876	376,318
1899	139,487	117,039	222,550	444,227	362,037	561,266
1900	125,428	99,994	306,726	598,021	432,154	698,015
1901	138,628	107,625	350,660	563,255	489,288	670,880
1902	77,300	50,795	522,899	916,221	609,199	967,016

The average selling price of natural rock cement at the works during 1902 was 66 cents per barrel, and of Portland cement $1.75 per barrel. In 1901 it was 77 cents and $1.60 respectively.

In 1901 four factories were making Portland cement, and four natural rock cement. In 1902 the number of establishments making Portland cement had increased to eight, while those turning out the natural rock article remained at the same number as before. The producers of Portland cement were, the Hanover Portland Cement Company, of Hanover; the Lakefield Portland Cement Company, Lakefield; the Sun Portland Cement Company, Owen Sound; the Owen Sound Portland Cement Company, Shallow Lake; the Imperial Cement Com.

pany, Owen Sound; the Gray and Bruce Portland Cement Company, Owen Sound; and the Canadian Portland Cement Company, Marlbank and Strathcona. The natural rock cement factories in operation were those of the Toronto Lime Company, Limehouse: Estate of John Battle, Thorold; F. W. Schwendiman, Hamilton: and Isaac Ussher, Queenston.

Since the beginning of 1903 the National Portland Cement Company's works at Durham, in the County of Grey, have gone into operation. Several other plants are in course of construction, and a number of others are projected.

DEVELOPMENT OF THE CEMENT MANUFACTURE.

The manufacture of Portland cement in Ontario had its origin at Marlbank in the county of Hastings and at Shallow Lake in the county of Grey, at nearly the same time about 12 years ago. The present centre of the industry is in the county of Grey, where six out of the nine producing plants are situated. A brief description of these and the other factories in the Province, and some account of the new establishments which appear likely to be manufacturing cement shortly, may be found of interest.

The works of the Hanover Portland Cement Company, Limited, are situated at Hanover, Grey County. Its marl beds are a mile and a half distant, and its clay deposits close to the works. The plant consists of a brick factory, and brick and cement warehouses, and include drying darres, wash mills, ball and tube mills, slurry grinding and pumping machinery, automatic carriers, etc. The kilns at present in use are five Bachelor set kilns and one Schneider continuous kiln. The capacity of the plant is 150 barrels per day, but the company has recently offered for sale $180,000 worth of 7 per cent. cumulative preferred stock—the total authorized capital being $500,000—with the proceeds of which it is proposed to increase the capacity to 650 barrels per day, construct a railway to the marl deposits, develop a water privilege on the Saugeen river for power purposes, and make other improvements. The company's brand of cement is the "Saugeen." A siding connects the factory with the Grand Trunk Railway. D. Knechtel is president, and J. S. Knechtel managing director.

The Lakefield Portland Cement Company, Limited, began the construction of their plant at Lakefield in the County of Peterborough in 1900, and were manufacturing cement early in 1902. The works are situated on the Trent canal and were planned with a view of utilizing an all-water route for the transportation of cement to Montreal and lower ports. The whole of the machinery is operated by electric power derived from the Trent canal, which affords a large economy in fuel for power purposes. The completion of the canal would, it is estimated, enable the company to reduce its coal bill for cement burning to the extent of $15,000 per annum. Three kilns only were installed last year, but three more are now being added, which will give the plant a capacity of about 200,000 barrels per annum. The company's brand is "Monarch," and it has taken well in the market. J. M. Kilbourn is president of the company, F. A. Kilbourn, secretary-treasurer, and A. S. Butchart, superintendent.

Manufacturing was begun at the Sun Portland Cement Company's works at Owen Sound in October of last year, the output up to 31st December being about 8,000 barrels. The site of the plant consists of about 4½ acres of land lying between the bay at Owen Sound and the Grand Trunk Railway, with which line the works are connected by switches, and there is ample dock room for unloading and storing coal as well as for shipping cement. The manufacture is by the dry rotary kiln system. The buildings were erected with the view of producing 600 barrels of cement per day, but machinery for one-half this output only was installed. Additional facilities are being added to bring the capacity up to 500 barrels per day. The marl bed is at McNab lake in the township of Keppel, about 2½ miles from Shallow lake, where the company's railway connects with the Grand Trunk system. The marl is loaded on ordinary cars by means of a steam derrick, which will lift from the bed and place on the cars

about 700 tons per day. These cars are hauled by the company's locomotive to the Grand Trunk at Shallow lake and thence to the mills by special G.T.R. trains. The clay beds are in the village of Brookholm, about three-quarters of a mile from the factory, to which it is at present delivered by team. Mr. James A. Cline is secretary and general manager of the company.

The Owen Sound Portland Cement Company, Limited, has its works alongside of the marl deposit at Shallow lake on the Grand Trunk railway. The wet process of manufacture is employed. The power mixing and grinding capacity of the plant is equal to 1000 barrels per day, but the kilns now in use cannot put through more than 525 barrels. Rotary kilns are being added to place the burning facilities on a level with the rest of the plant. Mr. R. P. Butchart is manager of the company.

Mr. M. Kennedy is president, and Mr. J. W. Maitland, secretary-treasurer, of the Imperial Cement Company of Owen Sound, which has an authorized capital of $250,000. The works are situated at Owen Sound, and have a capacity of 300 barrels per day. The process used until last year was the dry system, but was changed to the "semi-wet," drying being done in rotary dryers, and burning in stationary Alborg kilns. Marl is procured from Williams lake, about 14 miles from Owen Sound on the Canadian Pacific railway, and clay close to the works. The company's product is branded as "Imperial," and is marketed mainly in Ontario and Manitoba.

Another plant at Owen Sound is that of the Grey and Bruce Cement Company, Limited, which began making cement in 1902. The capacity is about 300 barrels daily.

The Canadian Portland Cement Company, Limited, whose head offices are at Deseronto, operates two factories, one at Marlbank and the other at Strathcona. In 1902 the capacity of the former was 600 barrels per day, but in the autumn the installation of additional kilns and machinery was begun to increase the capacity to 1200 barrels per day, and the work will now shortly be completed. The raw materials are marl, of which there are large deposits at Dry and White lakes, and blue clay. In mixing the wet process is employed; in burning rotary kilns are used, and grinding the clinker is done in ball and tube mills. At the Strathcona plant, the capacity of which is 300 barrels per day, mixing is carried on by the wet process, burning by continuous shaft kilns, and grinding by ball and tube mills. This company's brand is the "Star," which is favorably known.

The plant of the National Portland Cement Company, Limited, which began producing cement since the beginning of the present year, is situated at Durham, in the county of Grey. The marl beds are at Wilder's Lake, some miles away, where the marl is raised by a steam dredge and placed in hopper cars on a line of railway connecting with the works. The rotary kiln system is employed, and the works have a capacity of 1,000 barrels per day.

PLANTS BUILDING AND PROJECTED.

The factories mentioned in the foregoing paragraphs comprise all those which have been completed and are at the present time actually producing cement, but there are two or three more which are now in process of construction.

Among these is the plant of the Raven Lake Portland Cement Company, Limited, which was incorporated in 1902, and the directors of which are: Hon. Geo. McHugh, Lindsay; J. H. Carnegie, M.P.P., Coboconk; John Lucas, Toronto; Thomas Christie, Toronto; Duncan Robertson, Toronto; W. Sargeant, Barrie; Thos. McLaughlin, Toronto. The last named is also secretary-treasurer with offices at 16 King St. west, Toronto. Raven Lake is a sheet of water about 354 acres in extent, lying alongside the Coboconk branch of the Grand Trunk railway, about 1½ miles from Victoria Road station. The water is about one foot deep and underlying it is a body of marl said to be from 10 to 20 feet in depth. The buildingswhich are now being erected will stand between the railway track and the lake. Four rotary kilns are to be installed at

the outset, each 60 feet long with a drying extension 40 feet in length, making a kiln practically 100 feet long. The output of these four kilns is expected to be 700 barrels every 24 hours. Provision is being made for an easy enlargement of the plant by installing additional kilns. The work is being done under the supervision of Mr. R. F. Wentz, of Nazareth, Pennsylvania, who has had long experience in erecting cement factories. The buildings are to be fire-proof and of steel-frame construction. All machinery is to be operated by electric power generated at Elliott's Falls on the Gull river, some 12 miles away. Special features claimed for this undertaking are water power with dams already built, and proximity of marl supply and factory to the railway, thus obviating the expense of constructing and operating branch lines.

The Ontario Portland Cement Company, Limited, is building a cement plant at Blue lake in the township of South Dumfries, where, and in the marshes surrounding the lake, there is a large deposit of marl. A siding from the Grand Trunk railway will run to the stock-house door, while the works themselves are within 75 feet of the marl bed. Clay underlies the marl. Manufacturing will be by the wet process; rotary kilns 70 feet long will be used for burning. The buildings are of brick with steel and iron roofs, and are being erected of size sufficient to allow of additional machinery being put in if required. At the outset the output will be about 500 barrels per day. The company, whose head office is at Brantford, has an authorized capital of $450,000. The officers are E. L. Goold, president; W. S. Wisner, vice-president; W. C. Elliott, managing director, and E. D. Taylor, secretary-treasurer.

Hitherto all the Portland cement produced in Ontario has been made with shell marl as the ingredient supplying the necessary carbonate of lime. It is contended by some that where solid limestone can be obtained of the required chemical composition, it can be substituted for marl with advantage in economy of manufacture. The marl as it is raised from the beds of shallow lakes, where it is usually found, contains a great deal of water which must be got rid of in the process of manufacture, and which adds to its weight and consequently to the expense of handling. Solid limestone on the other hand carries less moisture, and the crushing to which it requires to be subjected can be performed at less cost than is required for expelling the water from the marl.

The Belleville Portland Cement Company has been organized to manufacture Portland cement from limestone and clay, by what is known as the dry rock process. Roughly speaking, this means the crushing of the limestone in large gyratory crushers, after which the clay is mixed with the rock in the proper proportions. The material then passes through the rock dryers, and the small amount of moisture driven off. It then passes to the rock pulverizing rooms, where it is reduced in Griffin mills to the fineness of flour. From this room it goes to the kilns to be dried or burned, issuing as clinker, which is then ground or pulverized to the proper degree of fineness for finished cement. The company's rock deposit is said to be of fine quality and to contain a very large quantity of raw material. It is entirely bare of covering. The clay beds lie close by, and the railway connecting the works with the Grand Trunk runs directly through them, so that the cost of hauling will be small. The equipment of the mill will be of the most modern type. Grinding machinery will be operated by direct connected engines, and the outlying portions of the plant by electricity. The buildings will be of stone with expanded metal and concrete roofs.

The situation of the works will be on the Bay of Quinte, on lot 18 in the broken front concession of the township of Thurlow, within four miles of the city of Belleville, where the company will have two docks, each with 14 feet of water, thus enabling the regular river and lake boats to load. One dock will be used for unloading coal from Oswego, and the other for the shipping of finished cement. The plant is to have ten rotary kilns, each being rated at 250 barrels per day of 24 hours, thus giving a daily output of 2,500 barrels. Limestone for making the cement will be taken from lots 16, 17, 18 and 19 of the broken front concession, Thurlow township, and clay from lot 14 in the first concession, about two miles from the works.

The following analyses furnished by the company's engineer, Mr. C. B. English, show the composition of the limestone and clay :

Constituent.	Clay.	Limestone.
Silica	61 70	0.60
Alumina	16.60	0.78
Ferric oxide	5.20	
Lime	2 30	54.67
Magnesia	2.30	0 54

Actual construction of the works has not yet begun, but the railway spur to connect them with the Grand Trunk railway is partially built, and building operations will shortly be under way.

The Colonial Portland Cement Company, Limited, has been formed with a capital of $800,000, of which $300,000 is 7 per cent. preferred and $500,000 common stock, to erect a 1,000-barrel mill on Colpoy's Bay, near Wiarton, in the county of Grey. Mr. Elbert L. Buell, of Detroit, Mich., is president, and Mr. David A. Wright, Wiarton, is secretary. The beds of marl and clay are situated in the township of Keppel, close to the site of the proposed works.

CONDITION OF THE INDUSTRY.

Apprehensions are being entertained by some of those now engaged in the manufacture of Portland cement in Ontario that an era of over-production is about to set in, with all its unpleasant accompaniments of low prices and severe competition, perhaps even loss and bankruptcy. There does not appear to be reason for believing that such a state of things is at hand, since stocks of cement carried over from last year by Canadian and American factories are stated to be light, which could hardly be otherwise in view of the enormous demand in the United States last year which, besides large importations, absorbed the home product of about 15,500 000 barrels at an average price per barrel nearly double that of the previous year. In consequence of this and the scarcity and high price of coal prevailing last winter, the cement production of Canadian works for the present year at any rate is likely to be disposed of at high prices. In addition to this, the uses to which cement is being put are steadily increasing, so that the market is being constantly enlarged ; hence, while the present era of prosperity continues, Portland cement makers are likely to obtain a share of it.

Nevertheless, there are grounds for misgivings as to the future of the industry if all the works now being projected are built. The imports of cement into Canada during the fiscal year ending 30th June 1901, were 461,000 barrels, and during the year ending 30th June 1902, 577,876 barrels.[4] Adding to the latter quantity the production of Ontario, which

[4]The importations of Portland cement for the fiscal year ending 30th June, 1902, were as follows :

Country.	Cwt.	$
Great Britain	357,679	145,315
Belgium	382,365	119,119
France	165	50
Germany	98,949	33,626
United States	1,183,408	563,641
Total	2,022,566	$1,861,751

is as yet practically the only producing Province, for the calendar year 1902, we find that the quantity of cement representing a year's consumption in the whole of Canada may be taken to be about 1,100,000 barrels. Allowing for an increased use of cement due both to the development of the country, and the multiplying uses to which the material is being put, the consumption say of 1903 or 1904 may reasonably be placed at 1,200,000 or 1,300,000 barrels.

Let us see how far the factories at present in operation in Ontario are in a position to meet this demand, on the assumption that they will have the home market entirely to themselves—something they have never had yet. The following list shows the capacity of the several plants, together with the capacity they will have when enlargements now under way are completed:

Name of Company.	Present capacity per day.	Capacity per day when enlarged.
	bbl.	bbl.
Hanover Portland Cement Company	150	650
Lakefield Portland Cement Company	300	600
Sun Portland Cement Company	300	500
Owen Sound Portland Cement Company	525	1,000
Imperial Cement Company	300	300
Grey and Bruce Cement Company	300	300
Canadian Portland Cement Company, Marlbank	600	1,200
do do Strathcona	300	300
National Portland Cement Company	1,000	1,000
Total	3,775	5,850

The yearly output of the factories as at present equipped, if all were working full time, will therefore be say, 1,150,000 or 1,200,000 barrels, and when the improvements now in progress are made, it will rise to say 1,700,000 barrels. The latter quantity is in excess of the present annual consumption, so that it appears to be within the capacity of the cement factories now in existence to supply the requirements of the home market. Yet it is to be borne in mind that the actual production of a plant, or any number of plants, while it cannot exceed not infrequently falls short of the possible production. Indeed it may be taken for granted that the maximum output is rarely if ever attained. Even if not more than the average number of stoppages due to accidents, repairs and other contingencies incidental to all forms of manufacturing are experienced by the cement mills of Ontario during the present year, the aggregate output may well be within the necessities of the Canadian market.

If however all the new plants now being built and promoted reach the stage of actual production there will be a decided increase in the output of cement, and unless there is an unexpected enlargement of the market, over-production will follow. The resulting competition will be keen, especially if the supply in the United States should overtake the demand there, and bring about "slaughter" shipments to this country.

Imports continue to be made at about the same rate, the figures for the seven months ending 31st January 1903 being:

Country.	Cwt.	$
Great Britain	189,370	72,418
United States	399,991	194,818
Belgium	489,673	155,840
Other countries	201,437	70,666
Total	1,280,471	$493,742

There has been serious depression in the cement industry of Germany, due to over-production, and a combination of English cement-makers formed in 1900 to control the trade in that country failed to earn dividends on the preference stock during either of the two years it has been in operation, the causes assigned for the lack of success being the high price of fuel and severe competition.

There is no wish to discourage legitimate enterprise, and everyone will rejoice if none of the gloomy forebodings now rising in the minds of those interested in the cement industry of Canada are ever realized. It cannot be overlooked, however, that should the demand for cement fall off materially, particularly in the United States, whether in consequence of an over-production in this particular article or the cessation of the present prosperous condition of trade generally, prices of cement will fall, and the cement makers of this country will have to cope with the evils of foreign invasion as well as those of internecine war. A note of warning cannot come amiss, and those who are disposed to invest their capital in new plants for making cement would do well to carefully survey the situation, and ask whether or not the day of high profits and large dividends is not likely sooner or later to come to an end.

Arsenic, Calcium Carbide, Corundum.

The production of white arsenic in Ontario last year was 800 short tons valued at $48,000, as against 695 tons worth $41,677 in 1901. It is obtained from the mispickel ores of Hastings county, where the Canadian Goldfields Limited have been operating the mines at Deloro for a number of years. A proportion of gold accompanies the arsenic in the Deloro ore, and the amount of bullion obtained from this source has been considerable, but the gold recovering portion of the Goldfields' plant has not been in operation since March 1902. The Atlas Arsenic Company's works, which are situated immediately alongside the Deloro mine, were turning out gold during the latter months of the year, but so far have not begun making arsenic. There is no doubt the arsenic deposits of Hastings county are very extensive, and could be made to supply a very large part of the total quantity of this material required, at any rate in America. Until 1902 nearly all the arsenic used in the United States was imported, but last year a domestic production was reported of 2,400 short tons, valued at $144,000, as compared with a yield in 1901 of 300 tons valued at $18,000. The Canadian article is marketed almost entirely in the United States, about 75 per cent. of it being used in the manufacture of glass, and the remainder for making Paris green, pigments, etc.

Following are figures showing the output of arsenic in Ontario during the four years beginning with 1899, when its production was resumed at Deloro, after a cessation of several years :

PRODUCTION OF ARSENIC 1899 TO 1902.

Year.	Tons.	Value.
		$
1899	57	4,842
1900	303	22,725
1901	695	41,677
1902	800	48,000

There were two plants making carbide of calcium last year, namely, The Willson Carbide Works, Merritton, and The Ottawa Carbide Company, Ottawa. Their combined output was 1,402 tons worth $89,420, as compared with 2,771 tons valued at $168,792 in 1901.

Statistics of the carbide industry for the last five years are as follows:

CALCIUM CARBIDE 1898 TO 1902.

Schedule.	1898	1899	1900	1901	1902
Carbide produced .....tons.	1,040	1,064	1,005	2,771	1,402
Value of product ..... $	55,976	74,680	60,300	168,792	89,420
Workmen employed.....No.	35	48	32	83	57
Wages paid ..... $	16,398	23,828	72,584	40,788	28,965

Development of the corundum deposits of the Province continues to go on, two companies being now engaged in the industry as against one last year. The Canada Corundum Company, which was first in the field and naturally had the choice of the deposits then known, has for several years been at work in the township of Raglan, where a plant, necessarily experimental to some extent, was installed on the Robillard property, now known as the Craig mine. The initial difficulties in treating the product, which lay mainly in effecting a thorough separation of the corundum from the accompanying feldspar, having been overcome, and a market having been established for the crushed and sized corundum, the company is now proceeding to erect a new mill which is expected to have a capacity of 200 tons of crude ore per day. For the necessary motive power a water privilege, either on the Madawaska river or the York branch will be developed.

At a point in the township of Carlow, some 4 or 5 miles west of the Craig mine, the Ontario Corundum Company have begun work on a property purchased from Mr. Nesbit Thomas Armstrong. So far mining only has been done, the corundum rock being sorted by hand and then shipped to the United States for crushing and concentration. The transportation charges on so much waste material are heavy, and the company entertain the idea of putting up a mill to separate and crush the corundum on the ground.

The progress of the corundum industry in this Province since 1900, when the first production took place, is shown by the statistics subjoined:

PRODUCTION OF CORUNDUM 1900 TO 1902.

Schedule.	1900	1901	1902
Corundum produced.....tons	60	534	1,137
Value of product ..... $	6,000	53,115	83,871
Workmen employed .....No.	35	68	95
Wages paid for labor ..... $	10,000	30,406	34,674

As will be observed, the production in 1902 was more than double that in 1901, while the value increased by about 58 per cent. only. The explanation is that the output of the Ontario Corundum Company, being shipped as cobbed rock, is estimated at its value only in that state.

Feldspar, Gypsum, Salt, Pyrites.

In quantity and value the output of feldspar in 1902 was in excess of that for 1901, the production in the former year being 8,776 tons valued at $12,875, and in the latter 5,100 tons worth $6,375. The area of production is the township of Bedford in the county of Frontenac, where outcrops of microcline, carrying from 12 to 14 per cent. of potash are found, and can be easily quarried. The product is well adapted for use in the manufacture of pottery and other

articles such as door knobs, etc., and goes mainly to New Jersey for such purposes. The principal producers are the Kingston Feldspar and Mining Company, Kingston ; the Pennsylvania Mining Company, and Charles Jenkins, Petrolea.

The gypsum deposits on the banks of the Grand River are not being extensively worked. The use of plaster for fertilizing purposes is not large, and the principal purpose to which gypsum is applied is the manufacture of alabastine, "Paristone" and other wall products, for making which the Alabastine Company, of Paris, Limited, has a factory at the town of Paris. William Smith, of Caledonia, works a deposit near that village.

The output last year was some 1,917 tons, and the value of the products made was $19,149.

The vast salt beds of the southwestern peninsula of Ontario are capable of a much larger production than the present yield, and if circumstances ever call for them, the greater quantities will without doubt be forthcoming. Ten salt works in 1902 produced 62,011 tons of salt worth $344,620, as against a production in 1901 of 60,327 tons worth $323,058. The Canadian Salt Company, Windsor, was the chief producer.

In the following table are given statistics of the salt industry of Ontario for the last five years :

PRODUCTION OF SALT 1898 TO 1902.

Schedule.		1898.	1899.	1900.	1901.	1902.
Salt produced.....	Tons	59,385	56,375	66,588	60,327	62,011
Value of product.....	$	278,886	317,412	324,477	323,058	344,620
Workmen employed.....	No.	191	261	243	189	198
Wages paid	$	60,629	80,021	72,584	67,024	76,154

Following is a list of the salt works reporting production to the Bureau of Mines for 1902: T. F. Coleman, Seaforth ; Ontario People's Salt and Soda Company, Kincardine : Gray, Young & Sparling, Wingham : Sarnia Salt Company, Sarnia ; Carter & Kittermaster, Windsor ; R. & J. Ransford, Brussels and Stapleton ; Canadian Salt Company, Windsor ; Parkhill Salt Company, Parkhill : Exeter Salt Company, Exeter.

Iron pyrites is in demand for the manufacture of sulphuric acid, and two deposits were worked last year, though the production reported was less than in 1901. The Madoc Mining Company has been operating an iron pyrites mine near Bannockburn, Hastings County, for some years, which at first was opened for bog iron ore. The upper stratum of this material, doubtless due to oxidation of the pyrites, was of slight extent and soon gave way to the solid and more valuable pyrites beneath. A large deposit of pyrite was uncovered at the Helen iron mine, Michipicoton, by the Lake Superior Power Company, who used the product in the manufacture of sulphurous acid for their sulphite pulp mill at Sault Ste. Marie.

The total output was 4,371 tons valued at $14,993, a reduction of 2,629 tons in quantity and $2,507 in value as compared with the production of 1901.

Natural Gas.

The yield of natural gas which fell off in 1901 as compared with 1900 again suffered a diminution in 1902. Last year's production amounted in value to $199,238, as against $342,183 in 1901. The decline was principally in the Essex field, where the prohibition of export of gas

to Detroit, having been imposed in October 1901, had a full year's effect upon the figures of production. The method taken to put an end to the export of gas from the Essex field well illustrates the powers possessed by the Provinces by virtue of their owning the lands under the waters forming the international boundaries. Some years ago a license of occupation was granted to the Interior Construction and Improvement Company to lay down pipe lines on that part of the bed of the Detroit river opposite a given point within the limits of Ontario, the right to cancel the license being reserved to the Lieutenant-Governor in Council. The company laid down their mains, and for some years did a large business in sending gas across to the city of Detroit. Complaints began to be made as to the approaching exhaustion of the gas supply by inhabitants of the field who wished to preserve it for their own use. On investigation being made these complaints were ascertained to be well-founded, and an Order-in-Council was passed revoking the license of occupation, which at once brought the business of exporting gas to an end. Notwithstanding stoppage of the export, it does not appear that there has been any increase in supply or pressure of gas in the Essex field. In the town o Leamington, where wells owned by the municipality supply the inhabitants, barely enough gas is obtained for cooking purposes. None is used for heating.

Following are the figures showing value of natural gas produced in Ontario during the last five years :

Year.	Value.
1898	$301,600
1899	440,904
1900	392,823
1901	342,183
1902	199,238

The production, it will be seen, has been on a descending scale since 1899. Last year's yield was less than 60 per cent. of that for 1901, about 50 per cent. of that for 1900, and about 45 per cent. of the output for 1899.

The returns show that there are 169 wells producing gas in the Province, of which 18 are situated in the Essex field, 120 in the Welland field, 2 in the Bruce peninsula, and the remainder in Haldimand county, where some 11 wells have been sunk near Dunnville, developing gas territory of considerable importance. Eighteen producing and thirteen non-producing wells were bored during the year. The number of miles of pipe used in distributing the gas was 369, and the number of employees engaged was 107, to whom $55,618 was paid in wages. The bulk of the production from the Welland field goes to Buffalo.

Taxation of natural gas companies under the Supplementary Revenue Act produced $6,308.95, as follows :

Provincial Natural Gas & Fuel Company of Ontario (Limited)	$2,547 74
United Gas and Oil Company, of Canada, (Limited)	3,761 21

Petroleum and Petroleum Products.

The production of petroleum was less than in 1901, being 18,185,592 imperial gallons of crude oil as against 21,433,500 gallons in that year. The reduction of the yield is proceeding slowly, being to some extent from time to time offset by the finding and opening up of new "pools" or "fields." Formerly all the crude oil was refined, but within the last two or three years an increasing proportion has gone into consumption in the crude condition for fuel and gas-making purposes. The quantity of crude distilled in 1902 was 15,630,592 gallons, leaving the remainder, estimated to amount to 3,555,000 gallons to be devoted to other uses

The number of gallons crude produced and refined and the quantity and value of the products of refinement for the last five years are set out in the following table :

PETROLEUM AND PETROLEUM PRODUCTS 1898 TO 1902.

Schedule.		1898	1899	1900	1901	1902
Crude produced	imp. gals.	26,978,977	23,615,967	23,381,783	21,433,500	18,185,592
" distilled	"	26,978,977	23,615,967	23,381,783	17,745,182	15,630,592
Value of crude produced	$	1,970,534	1,747.352	1,869,045	1,305,540	1,298,961
Value distilled products	"	1,122,801	1,021,528	1,126,777	980,222	940,104
Illuminating oil	imp. gals.	12,281,622	11,697,910	11,783,755	9,463,262	7,720,866
Lubricating oil	"	2,043,226	2,087,475	1,980,428	764.861	2,765,677
Benzine and naphtha	"	1,240,967	1,394,530	1,463,599	1,075,999	902,847
Gas and fuel oils and tar	"	8,047,441	5,410,915	3,669,102	2,652,987	2,157,039
Paraffin wax and candles	lb.	2,616,086	2,792,766	4,599,683	3,489,492	2,433,127
Workmen employed	No.	546	491	347	351	323
Wages paid	$	263,455	214,171	163,077	161,042	169,398

The refining business which was concentrated in the hands of the Imperial Oil Company about the beginning of 1899, with works at Sarnia, is now shared by the Canadian Oil Refining Company, whose refinery is situated at Petrolea. The manipulation of Ontario crude oil has advanced to such a point that over 50 per cent. of illuminating oil can be extracted, and a product obtained equal in quality to the best American oil, notwithstanding the greater percentage of sulphur found in Ontario crude as compared with the Pennsylvanian article.

A good deal of interest was created by the finding of oil later in the year in the township of Raleigh, a few miles south of Chatham. A "gusher" was struck by Mr. A. T. Gurd of Petrolea, in November, 1902, which yielded heavily for some time at the start. It soon ceased flowing, however, and has since had to be pumped. A number of other wells were put down in the vicinity, in a few of which oil was obtained. The permanency and value of the Raleigh field remain to be demonstrated, but there are grounds for hoping that a productive area may be found. The quality of the oil is good. The locality was visited by Prof Miller, Provincial Geologist and Inspector of Mines, who furnishes the following information respecting the strike of oil and the geology of the field :

THE RALEIGH OIL FIELD.

Oil was struck in a drill hole which was put down on lot 18 in the twelfth concession of the township of Raleigh, Kent county, last November. The first oil was shipped on the 27th of that month.

As the well was what is known as a flowing well, and as it was the first one found in the township, considerable excitement was caused by the discovery. Twenty or more drilling rigs were soon at work in the vicinity, and at the time of my visit to the field in January 1903 over twenty-five wells had been drilled. Work has been continued since that time. Early in April 60 wells had been completed, and ten were being drilled.

The first well drilled was located by Mr. A. T. Gurd, and on account of it, being a flowing or spouting well was given the alliterative name of the "Gurd gusher." It was soon connected by a pipe line with a point on the Michigan Central railway, about a mile distant, and became a pumping well, like so many others from which the oil at first flows of its own accord. It is estimated that during its flowing period the well produced about 1000 barrels of oil per day. At the time of my visit no oil was being produced from it on account of preparations which were then being made for the installation of a new pumping plant. In April the well was said to be pumping 25 barrels per day.

The log of this well does not appear to have been kept very carefully. It will be seen by those who are acquainted with drilling operations in the Ontario oil fields that the thickness given for the "middle lime" in the following log is much less than that usually found, and is to be accounted for probably by error of observation on the part of those in charge of the drilling operations. The log also shows that the Hamilton shale is somewhat cut down or eroded at this point.

LOG OF THE GURD WELL, LOT 18, CON. 12, RALEIGH.

	Thickness.
Boulder clay	160 feet
Shale	40 "
Middle lime	2 "
Shale	73 "
Lower lime	to 460 " from the surface of the ground.

A well which was being drilled on lot 19 in the thirteenth concession, 700 yards from the Gurd, at the time of my visit showed 150 feet of boulder clay and then hard pan, sand and gravel to 220 feet, the point reached at that date. The greater thickness of loose material at this point, as compared with that found where the first well was drilled, gives evidence of the presence of an old stream or river channel. It is stated this old channel was found to be 100 feet deep.

Of the following logs No. 1 is said to represent a typical well of the district, and No. 2 a well put down on the centre of lot 15 in the twelfth concession of Raleigh.

NO. 1.

Boulder clay with occasional layers of sand and gravel	184	feet
Shale	to 205	"
Limestone (argillaceous) [5]	to 211	"
Shale	to 240	"
Limestone	to 246	"
Shale	to 247	"
Limestone (middle lime; slightly argillaceous)	to 249	"
Shale	to 278½	"
Limestone, very slightly argillaceous, becoming almost pure lime thereafter	to 511	"

The last is what is known as the "big lime."

NO. 2.

Alluvium	140 feet
Portage shale	45 "
Hamilton shale	193 "

Bottom part corresponds to what is given under No. 1.

It may be noted that a well put down at Dresden showed 200 feet of alluvium.

The anticline which had been only roughly outlined in the neighborhood of the Gurd well at the time of my visit showed a dip of about 30 feet in one-half mile on its northern side, and about the same dip on its southern face. This was determined by the drill holes which had been put down, the underlying rock being covered, as already stated, by about 160 feet of alluvium.

The part which an anticlinal structure plays in prospecting is well known to oil men, but for the benefit of the general reader it may be stated that in the Ontario field, and in most other districts of the world, oil is found only where the rocks have taken on this form, i. e., where they have been bent into a gentle ridge-like structure, which is called an anticline.

This structure in rocks is of course discovered with difficulty where the surface is occupied by a thick mantle of drift such as that which covers the solid rocks in Raleigh. That the oil in this district was not discovered by mere chance or by drilling at random, without any knowledge of the structure of the underlying rocks, will be evident from the following statement: In the neighborhood immediately surrounding what is now known as the Gurd well the farmers had put down a number of wells through the 150 feet or so of alluvium to the solid rock in order to get water, which was obtainable in quantity only at this depth. The water from one of these wells was found to carry more or less oil. This fact of itself would be of little significance had not the surrounding wells when their logs were studied given evidence of the presence of an anticline in the vicinity. Mr. Gurd, who was travelling through the district, had his attention drawn to the well from which the oily water came. He and his associates also obtained the logs of other wells which had been put down, and from these it was quite evident to them that an anticline was present. This was seen from the fact that the bottom of some of the wells struck the shale, the layer of rock which here lies immediately under the mantle of clay and sand, at greater depth than others. Moreover, it was found that some of the wells yielded little or no water, while others gave a copious supply, thus affording evidence that the former were on top of an anticline, from which the water ran off to the sides.

[5] Characteristic band of limestone 70 or 80 feet above the "lower lime."

Of course, after drilling operations had begun and a number of holes put down for oil additional information became available, by means of which the outline of the anticline or protuberance on the surface of the shale could be much more accurately defined. At the time of my visit this had been done in the Raleigh field, so that experienced oil men were able to tell me that oil would be struck in a certain well, which was then being drilled, some days before the oil horizon was really reached. When the latter was struck the oil and water spurted to a height in the air which was estimated to be sixty feet. It is stated, however, that this well has produced very little oil, and the spouting appears to have been due to the drill having struck a pocket of gas. The distance from the only two others, the Gurd and another, in which oil had been struck at that time was four or five miles. It will thus be seen that the locating of oil wells rests on a systematic basis, and that they are not usually discovered in the haphazard way that many persons suppose.

There seems to be a slight difference as regards the vertical boundaries of these important formations or rock groups—the Portage, Chemung, Hamilton and Corniferous—between the description given in the Geological Survey Reports on the district and those followed by the oil men. The latter describe the rocks of these formations as follows: The Chemung, or uppermost formation, is a uniform shale, while the upper bed of the Hamilton may be either a limestone, an argillaceous limestone, or a shale which is commonly called "soap." The Chemung, as recognized by the drillers, is said to be black, quite sandy and stratified, while the Hamilton shale is said to be gray when dry, and to show little stratification.

The Hamilton "soap" or shale which passes into the Corniferous limestone is said to have a thickness ranging from 25 to 30 feet. The limestone referred to is known as the "big lime" or "lower lime."

The most distinct and persistent limestone in the Hamilton is what is called the "middle lime." It lies 30 to 50 feet above the "lower lime" and varies in thickness from 7 to 20 feet. It is always present while other layers of shale and limestone in the Hamilton may vary in position or be wanting altogether.

The top limestone is persistent in thickness, 40 to 50 feet, over wide areas.

Where the top of the Hamilton is in place this formation is 255 to 260 feet in thickness. Where the top layer is not found below the Chemung, the formation is 195 to 210 feet in thickness.

The Oriskany is believed not to be present in the southwestern peninsula of the Province. A few grains of sand are sometimes found, but the rock is principally carbonate.

The only producing well in the Raleigh field at the present time, April 1903, is the Gurd, the first to be put down.

It is stated that a little oil has been obtained from some of the wells which have recently been sunk in the vicinity of Thamesville.

MINING ACCIDENTS.

The number of accidents reported to the Bureau of Mines in 1902 was 17, involving 22 men, and causing 10 deaths. This is an improvement over 1901, when 29 casualties occurred to 39 men, of whom 13 were killed.

Falls of rock and ore and unexpected explosions of dynamite continue to be the most fruitful sources of accident. The former was unusually prolific last year, falls of one kind or other being responsible for 8 out of the 10 deaths. To detect hidden seams in the roofs of workings amid darkness, illuminated only by miners' candles, is at best a difficult and uncertain task, yet the only way to secure a maximum of immunity from the dangers which lurk in loosened rock or opening fissures is to maintain a constant and systematic examination of the roofs and walls of all workings. Ground which one day may appear perfectly sound, and ring true to the scaler's hammer, may the next be shattered by the effects o some blast near by or far away; or moisture percolating from the surface or rising from floor to roof may, by alternate freezing and thawing, produce the same disintegrating effects in the workings of a mine as in rock masses on the surface. Nor should it be forgotten that in a climate like ours, where the winters are severe, the effects of freezing water are much more marked than in countries where frost is unknown or seldom seen. Open pit workings, on account of the free access to them of snow, rain and frost, seem especially liable to falls of rock and ore.

Human life is precious, and no pains to preserve it can be considered too great. There is a laudable desire on the part of mining companies to take precautions for the safety of their men ; a desire which is sometimes, it cannot be denied, defeated by the recklessness and foolish hardihood of the men themselves, who not infrequently despise the means provided for their own welfare, and reject a safer method involving trouble or inconvenience to themselves in favor of a more dangerous one which saves them steps or time. The scaling of walls and roofs however is not a matter which comes within the category of precautions to be taken by the workmen. It is one for managers and foremen ; and even on selfish grounds, if no other, the most careful measures to guard against falls of rock or ore in mine workings would be well repaid. Nothing tends to demoralize a force of miners more than a repetition of accidents due to causes over which they have themselves no control, and a gang of men full of anxiety for their safety cannot in the nature of things get out as much ore or do as much work as a gang working in the knowledge that recent and thorough examination has shown the roof under which they are laboring to be sound and whole, and that any crack or fissure which may be developed will be revealed, and the danger from it eliminated at the next scaling a short time ahead.

On the other hand, explosives are in the main used and handled by miners and workmen themselves. The temerity with which powerful and uncertain explosives are sometimes treated is almost incredible. Sticks of dynamite have been known to be carried about in a miner's pocket, or, to keep them from freezing, in his boot leg or shirt-bosom, and in the absence of a pair of plyers, a convenient method of fixing caps in place is by compressing them with the teeth. Bravado impels men to expose themselves during a blast rather than take sufficient cover, and missed holes are not treated with the degree of suspicion which their dangerous character deserves. There is no satisfactory way of protecting men from themselves, and to the end of the chapter there will doubtless be a proportion of accidents preventible in their nature, but preventible only if prudence and common sense are permitted by miners to rule their dealings with explosives, instead of recklessness and contempt of danger. There is reason to believe that in some cases the quality of the dynamite has been inferior, either because of defective manufacture or deterioration through long keeping, and this is a matter which managers should carefully guard against.

Deloro Gold Mine.

One P. Flinn was shovelling in a stope of the Deloro gold mine, owned by the Canadian Goldfields Limited, on 29th January, when a piece of rock fell from the roof above him, striking him on the shoulder and fracturing his collar bone. Flinn was at once removed to the surface where he was given medical attendance, and afterwards taken to Marmora. On 27th February he was reported as quite well again.

In the same mine, on 20th May, while the skip was being hoisted, one of the wheels came off, and falling down a distance of 100 feet, struck Thomas Neal, who was at the bottom of the incline, on the left foot, crushing it severely. The wound was dressed and Neal sent home. The mine manager states that the company's rules require the foreman to examine the hoist rope and all running gear every Monday morning and to report upon their condition. The mine skips are mounted with the Anaconda pattern of wheels. One of the latter, it was found, had cracked, allowing the key holding it to fall out and permitting the wheel itself to become detached.

Victoria Mine.

On 14th January an electrician named Harry Long, employed at the smelter, Victoria Mines, was directed to go to the mine to repair the electric light plant; and, contrary to orders

posted at the terminal of the tramway, boarded a bucket of the aerial tramway to ride to the mine. Seated on the outer edge of the bucket he swung it in toward the tower, causing it to collide with the latter. The bucket and Long were thrown to the ground, a distance of about 13 feet, and Long's leg was broken.

The following day, P. Chener, a drill-runner's laborer, was working in the fourth level, west stope, and while drilling into the roof in the rise was injured by a piece of rock falling on him. His shoulder was broken and he was otherwise severely bruised.

Ontario Smelting Works.

The nickel-copper mattes of the Canadian Copper Company are re-smelted and concentrated by the Ontario Smelting Works. The fine flue dust is collected in a large chamber 12 feet wide, 30 feet long and 18 or 20 feet high ; and it is part of the routine to clean out this chamber on Sundays when the furnaces are not being operated. The dust is very hot and must be cooled with water before it can be handled with safety. On the morning of 23rd February, a man named George Legault, employed by the contractor for this work, P. Fortier, entered the flue chamber and while throwing water on its contents through a hose, was suddenly overwhelmed by a falling mass of the hot dust, which burned him very severely. It is believed also that some of the dust got into his lungs and so hastened his death, which took place a few hours later. It was contrary to the company's rules for any one to go inside the flue chamber before the dust was cooled. The contractor testified that he himself and one or two other men were in the room with the deceased, but that at his directions they all came out before the accident occurred except Legault, who persisted in remaining inside. An inquest was held by Dr. R. B. Struthers, coroner, and the jury's verdict exonerated the Ontario Smelting Company and its foreman from any negligence, but found that the contractor did not exercise sufficient authority over the men working for him.

Canadian Copper Company's Mines.

At the Creighton nickel mine, on the morning of 25th February, Montrose Hays, foreman of the rock-picking department, descended into an ore bin to release ore clinging to the side of the bin and refusing to discharge. He was caught by the sliding ore and suffocated before he could be rescued. The ore after being crushed and sent over the jig table, passes through perforated revolving screens and assorts itself, according to size, into different bins beneath which the cars are placed for loading. Sometimes the ore in one of these bins becomes matted or wedged together, and must be loosened or shaken up before it will descend. This is done by prying the ore from above or below with an iron bar. Occasionally an arch of ore is formed from side to side of the bin, the pieces below the arch falling through and leaving an apparently solid mass of ore, though in reality only a crust. Some such occurrence doubtless induced Hays, who is described as an energetic, willing young man, to get into the bin, the more easily to loosen the ore, notwithstanding that the orders were, as he was aware, not to do so. No one saw Hays go into the bin, but he was soon missed from his post, and his mittens lying on the rail beside the bin indicated his whereabouts. The aperature at the bottom of the bin was opened as being the quickest way to get him out, but, though the body was quickly recovered, life was extinct. A coroner's jury, summoned by Dr. R. B. Struthers, returned a verdict to the effect that Hayes met his death from being suffocated in an ore bin at the Creighton mine, and that he came to be in the bin by accident or misadventure.

At No. 3 or Frood mine on 11th March, a miner named Gustavus England was killed by a large piece of rock falling from the roof of the drift in which he was working and crushing him, causing instant death. Coroner Struthers held an inquest, at which evidence was given that

the custom was to scale the roofs and walls of workings on Sundays, and whenever at other times there seemed to be a necessity. The roof in question was scaled on Sunday, 2nd March, when it appeared to be quite sound. Foreman Joseph Harris testified that he had carefully examined the roof on the morning of the accident, and thought it all right. Foreman Hiram Walker gave like testimony, stating that he had examined the roof that day ahead of the men and deemed it quite safe. Some of the witnesses thought that a frost the night before followed by a heavy thaw in the morning had had the effect of loosening the mass of rock or ore—about 500 lb. in weight—which fell on poor England. The fall took place in a tunnel or drift off the main stope, at which point the roof was 10 or 15 feet from the botton of the level, and 50 or 55 feet below the surface. The coroner's jury, while not attributing special neglect to any employe of the Canadian Copper Company, earnestly recommended that increased vigilance be exercised in scaling the roofs of all mines.

Another fatal accident of a similar nature occurred on 3rd April in the Canadian Copper Company No. 2 mine, when two Finlanders named Emil Sarminen and John Kuski were killed. The men were working under the brow of the stope at the entrance of a drift when a piece of ore weighing about two tons fell upon them from a height of 10 or 12 feet and instantly crushed them to death. It is stated that the ground at this point was scaled the day before the accident and again on the morning of the day the fall took place, and that all the men working in the pit were satisfied there was no danger. The surface of the ore which fell showed some frost, indicating that there was a seam into which the frost had penetrated, and that as the frost came out the block of ore was loosened. An inquest was held by Dr. Struthers. The jury simply found that the men accidentally came to their death by being crushed under falling ground, without attempting to place the responsibility for the occurrence upon any one.

An Italian workman named Araso Galaso, who was working for contractor D. L. McKinnon atthe Copper Cliff roast yard, was injured on 4th August by the effects of a blast set off in roasted ore. The regular blaster blew his whistle, lit the fuse and at once withdrew in one direction, supposing Galaso to have done the same in another direction, but on returning to see what the blast had accomplished he found Galaso lying on the ground. He had been struck by flying ore, his face being badly bruised, his left wrist dislocated, and his eyesight injured. The shock was a severe one, but the wounds were not of a dangerous character. The contractor reports that the ore in which the blasting was being done was cold.

At the Creighton open cut mine a power-drill helper named Thomas McHugh met his death on 15th December by being precipitated down the stope from a point about 15 feet below the surface. McHugh was on his way down to a bench on which the drill was set up, being followed by W. D. McKerrow, the driller. The latter stepped on a small projection of rock which gave way, and falling down struck McHugh on the breast, causing him to lose his balance and fall to the bottom of the stope, a distance of about 40 feet. He was taken up suffering from concussion of the brain, and died next morning at 3 o'clock. Coroner Struthers conducted an inquest, from the evidence given at which it appears that the stope had been scaled the previous day, Sunday, and left in what was considered good shape. A rope fastened to boulders at the top led down the stope for the protection of miners, but McHugh did not make use of the rope in descending. The bench on which the deceased was standing was only four feet wide. It was not perfectly level, and from this somewhat insecure footing, the shock of the falling stone—which was about the size of a man's head—was sufficient to dislodge him. There was some discrepancy of testimony among the witnesses as to the sufficiency of the scaling done on the previous day, some alleging that loose pieces of "muck" had been left near where the drillers were working. The jury were not unanimous in their finding. A majority

verdict, signed by eight jurymen, stated "that Thomas McHugh came to his death from a fall in Creighton mine, and that he was made to fall by a piece of loose rock falling and striking him ; and we believe there was negligence in having that part of the mine in the condition it was in." The remaining five jurymen rendered a minority verdict, holding the fall to have been purely accidental. The majority seem to have based their view as to the condition of the stope on the presence of loose material upon it, and the narrowness of the bench upon which the drillers had to stand while working. McHugh's usual occupation was that of a trammer, and he had been put on as "helper" for the first time on the day he was killed.

Big Master Gold Mine.

An explosion of dynamite in the Big Master gold mine on 17th March, severely injured John Archibald and John St. Amand, and less severely Malcolm Spear and George Robinson. On the accident being reported to the Bureau of Mines, Inspector of Mines Carter, being in the neighborhood, was instructed to investigate the circumstances, and report. The substance of Mr. Carter's report is as follows : The four injured men comprised one of the eight-hour shifts who were sinking the main shaft, and had begun work at 3 p.m. The previous shift had completed drilling the round of 16 holes, and it remained for this gang to load, blast and muck out. The centre sink of eight holes was blasted out, eight discharges counted, and the muck removed. The remaining holes were then loaded and fired, but only six discharges were counted. On partially removing the muck, the two missed holes were found with the burnt fuses still in place. Archibald and St. Amand began picking out the loose shattered rock at the bottom of the shaft, Spears and Robinson standing back out of the way. While thus engaged Archibald's pick struck and exploded some loose dynamite, the resulting injuries being : to Archibald, leg broken, two fingers blown off, face and eyes cut and eyesight destroyed ; to St. Amand, jaw broken, face and eyes injured ; to Spear, face and one eye cut and bruised ; to Robinson, hand and face bruised and cut, but not seriously. Those on the surface hearing the unexpected explosion hurried below and brought up the injured men, who were all cared for as well as possible under the circumstances. The nearest physician, Dr. White of Wabigoon, arrived in 13 hours' time and Dr. Blair of Dryden, 9 hours later. On 19th March the men were driven to Wabigoon and taken thence by rail to Winnipeg, where they were placed in the hospital, and soon began to mend. How the loose dynamite came to be in the bottom of the shaft could not be ascertained, but an examination of the remaining stock of the explosive showed it to be in poor condition, and its destruction was ordered. Directions were also left the manager to inspect drilling and blasting operations frequently enough to be certain that all missed holes were found and entirely discharged before resuming operations in working faces.

Elsie Nickel Mine.

The premature explosion of a sand blast at the Elsie nickel mine, the property of the Lake Superior Power Company, on 19th March, injured James Thompson, powderman, and Robert Neil, block-holer, the former so seriously as to necessitate amputation of the left leg above the knee, and the latter somewhat less severely in the head, back and right leg. Both were removed to the Sudbury general hospital, where Thompson died in 24 hours. Neil's bruises were sufficient to keep him indoors for ten days or so. The fuse connected with the charge of dynamite seems to have burned faster than was expected, thus causing an explosion before the men got out of the way. There were no others present when the accident occurred, and after making inquiries Coroner Struthers did not consider an inquest called for, in which view Mr. A. G. Browning, District Crown Attorney, concurred.

On 8th May another employee of the Elsie mine, named Peter Morrison, had the first finger of his left hand caught by the dump bucket and slightly crushed.

Radnor Iron Mine.

A mass of rock falling down the incline at the open pit workings of the Radnor iron mine, owned by the Canada Iron Furnace Company, and situated on lot 16 in the ninth concession of the township of Grattan, caused the death of Peter Larmond, or L'Armour, on 29th April. Larmond was about 67 years of age, infirm and slightly deaf, and when the rock tumbled down the slope the other men who were working on the pit bottom ran up the sides and escaped without difficulty, while the older and less active man was caught and crushed by the falling pieces. His injuries were very severe, both legs being broken and internal injuries inflicted, and they resulted in his death in about 32 hours after the accident. Dr. Channonhouse was the attendant physician, but no coroner was notified, the mine superintendent, Mr. D. J. McCuan, being under the impression that Dr. Channonhouse himself was still a coroner, as he had previously been. Mr. W. G. Miller, in his capacity as Inspector of Mines, was instructed to visit the mine and make an investigation, which he did under oath. The statements of the various witnesses who were called went to show that the superintendent and mine foreman had always taken the necessary precautions to guard against accidents, and that the rock which fell had given no previous indications of being loose or in any way dangerous. No blame appeared to attach to any one on account of the accident.

Helen Iron Mine.

The Helen iron mine, Michipicoton Mining Division, was the scene of a fatal accident on 26th August, when a "mucker" named August Anderson, Finlander, was caught by a rock, which had been loosened by a blast, rolling down the steep incline of the open pit and crushing him, causing instant death. The blast was a preliminary one set off to "spring" the bottom of a deep hole and prepare it for the final charge, and on such occasions it is the duty of the "powder monkey" to notify the men working near by to stand back. Anderson, however, it is stated, paid little or no attention to the warning, not even leaving his car, the result being that he was killed in the manner described. There is no coroner at the Helen mine, but Mr. M. B. R. Gordon, justice of the peace, was notified of the accident, and he gave it as his opinion that an inquest was unnecessary. Anderson was a married man about 45 years of age, and had been employed at the mine about three years.

A similar casuality occurred at this mine on 17th October, when one Peter Karcona, a machine helper, was killed by some ground which gave way about 20 feet above where he was working in the open pit, falling upon him and crushing his skull. The foreman, Cæsar Cain, saw the rock beginning to fall, and shouted a warning to the miners, all of whom got out of the way but the deceased. The rock had shown no symptoms of being loose. No inquest was held.

Moore Iron Mine.

At the Moore iron mine, Hastings county, worked by Mr. Arthur Coe, Madoc, on 3rd September a derrick suddenly gave way through the breaking of the mast, and was precipitated into the pit, where it fell upon a miner named Joseph Sanford, aged 18, breaking his right leg and crushing his left ankle. The derrick had been in use less than two years, and was considered equal to the tasks imposed upon it.

A summary table of the accidents is given below, from which it will be seen that of the 22 affected, 3 were slightly and 9 seriously injured, while 10 were either killed outright or died shortly after being hurt. Five of the men were working above ground when injured, and 17 below ground.

TABLE OF MINING ACCIDENTS IN 1902.

No.	Date.	Mine or works.	Name of person injured.	Result of injury.			Above ground.	Below ground.	Nature of injury.	Cause of accident.
				Slight	Serious	Fatal				
1	Jan. 14	Victoria	Harry Long	..	1	..	1	..	Leg Broken	Fell out of aerial tramway bucket.
2	" 15	"	P. Chener	..	1	..	..	1	Shoulder broken	Struck by falling rock.
3	" 29	Deloro	P. Flinn	1	..	..	..	1	Collar bone broken	Overwhelmed by mass of hot flue dust.
4	Feb. 23	Ont. Smelting	G. Legault	..	..	1	1	..	Killed	Suffocated in ore bin.
5	" 25	Creighton	M. Hayes	..	..	1	1	..	"	Struck by falling rock.
6	Mar. 11	Frood	G. England	..	..	1	..	1	"	Exploded dynamite while mucking ore.
7	" 17	Big Master	J. St. Amand	..	1	..	..	1	Face and eyesight injured	
			J. Archibald	..	1	..	..	1	Leg broken ; sight destroyed	
			M. Spears	..	1	..	..	1	Face bruised	
			G. Robinson	1	..	..	..	1	" "	
8	" 19	Elsie	J. Thompson	..	..	1	..	1	Died in 24 hours	Premature explosion of dynamite.
			Robert Neil	..	1	..	..	1	Bruised	
9	Apr. 3	Copper Cliff	Emil Sarminen	..	..	1	..	1	Killed	Struck by falling ore.
			John Kuski	..	..	1	..	1	"	
10	" 29	Radnor	Peter Larmond	..	..	1	..	1	"	Struck by falling rock.
11	May 8	Elsie	Peter Morrison	1	..	..	1	..	Finger crushed	Caught by dump bucket
12	" 20	Deloro	Thomas Neal	..	1	..	..	1	Foot crushed	Struck by falling skip-wheel.
13	Aug. 4	Copper Cliff	Araso Galaso	..	1	..	1	..	Face, wrist and eyes injured	Explosion of dynamite.
14	" 26	Helen	August Anderson	..	..	1	..	1	Killed	Struck by falling rock.
15	Sep. 3	Moore	Joseph Sanford	..	1	..	..	1	Leg broken ; foot crushed	" " " derrick.
16	Oct. 17	Helen	Peter Karcona	..	..	1	..	1	Killed	" " " rock.
17	Dec. 15	Creighton	Thos McHugh	..	..	1	..	1	"	Knocked down slope by falling rock.
				3	9	10	5	17		

Total number of casualties, 22.

MINING AGENCIES.

The mining land agencies at Sudbury and Rat Portage have as usual been found very useful to the mining community. The agents, Messrs. T. J. Ryan and L. C. Charlesworth respectively, report briefly on the operations of their offices as follows :

Mr. Ryan states : "There was brisk mining activity during the year, especially in the iron range in Hutton township and vicinity. Other parts of the Sudbury district were more carefully explored for nickel and with very satisfactory results. In this latter work Mr. Edison's party, under Mr. J. V. Miller, put in a faithful season's work. About 8,660 acres of land were applied for at the Sudbury Agency, and the sum of $1,663 forwarded to the Crown Lands Department. More applications would be taken and more money received during the year at the Agency, only that many prospectors and companies have their own solicitors at Toronto and other places who do that part of the work for their clients, and the Agency does not get the credit for it. However, this course seems to work agreeably for all parties concerned, and does not detract in the least from the usefulness of the Mining Agency.

"This year the correspondence was greatly increased, and the actual attendance of people at the office was double that of the previous year. The land roll has been constantly in use, and has been a great assistance to prospectors and others. A great number of strangers from the United States and different parts of the old country have personally used the office and have obtained maps, reports, mining regulations and other general information required in a strange place. Some of these were gentlemen of experience from the States and Australia, and they freely expressed the opinion that the Report of the Bureau of Mines of Ontario was a valuable work, and the maps were far ahead of the maps used in their country, and our Department of Mines well abreast of other countries. One gentleman told me that a map in Australia not as complete as our "Sudbury Mining District" map cost 5 shillings at the Land Office Department there, and he greatly preferred our map which we gave free to prospectors.

"The land roll has been invaluable to people requiring immediate information before going out to prospect, and it would be a great boon if some more townships were added, where mining is most active. During the past year an enormous quantity of Bureau Reports, Mining Acts, maps, Game Acts, etc., etc., were distributed from the Agency to applicants who personally came for them. In fact the supplies were exhausted several times. The Provincial Assay Office at Belleville is a decided help to prospectors, and is being more appreciated each year.

"The possibility of coal being discovered in New Ontario is a 'burning question' with the people up here. The fuel problem is getting to be a serious one. Wood is getting scarce and dearer, and coal brought in by rail is dear at all times, and especially this year."

Mr. Charlesworth reports under date of 3rd January, 1903 :

"This year has shown some increase over 1901 in the volume of business done, the activity chiefly centring in the vicinity of Eagle lake. A considerable amount of American capital has become interested in the region mentioned during the past few months, and work has been carried on at the Baden-Powell, Viking, Golden Eagle and Grace mines. The results have led prospectors toward Eagle lake, and hence the greater number of applications have been made for land in that vicinity, and fewer than usual around the Lake of the Woods.

"During the year the sum of $4,927.17 was forwarded through this office, being more than twice as much as in 1901, and applications were received covering more than 8,000 acres of land.

"Prospectors and others have, as usual, made constant use of the office in seeking information regarding mining lands, and many maps, blank affidavit and application forms, Reports of the Bureau of Mines, and copies of the Mines Act have been furnished to those requiring them.

"I receive many requests for a recent map of Eagle lake, as well as for a map of the country lying north and east from Whitefish bay, where indications would point to some activity next season, as it appears likely that mining operations will be carried on at several properties in that vicinity."

GOVERNMENT DIAMOND DRILLS.

The two diamond drills owned by the Government have been in steady use during the past year, one in the continuous employ of a single company, and the other serving a number of different parties. Both machines were made by the Sullivan Machinery Company of Chicago, the larger one a "C" drill capable of boring to a depth of 1,200 or 1,500 feet, and the other an "S," boring to a depth of 500 feet, the core extracted by the first having a diameter of an inch and an eighth, and that by the second or "S" drill of fifteen-sixteenths of an inch. Under the regulations governing the use of the drills, 35 per cent. of the actual cost of operations is borne by the Bureau of Mines.

The "C" Drill.

In January 1902 this drill was placed at the service of Mr. J. M. Clark, K.C., of Toronto, representing American capitalists, and sent to the vicinity of Steep Rock lake, on the Atikokan iron range, to explore a number of locations for workable bodies of iron ore. The drift in that neighborhood is plentifully sprinkled with fragments of excellent hematite, indicating the probable presence of bodies of the same in place. Since putting the drill at work boring operations have been continuous, and are likely to go on for some time to come. The results of the work appear to be such as to warrant faith in the ultimate success of the efforts. Large camp buildings have been erected and give an appearance of permanency to the undertaking. As it is not possible to arrive at the total cost of drilling until the completion of the work, the expense at this place is not included in the accompanying table.

The "S" Drill.

Towards the end of February 1902 the "S" drill was sent at the request of Mr. Rinaldo McConnell of Ottawa, to explore a graphite property belonging to him at Oliver's Ferry, in N. Elmsley township, a few miles southeast of Perth. The drill was in operation there from 1st March until 26th April, during which time seven holes were bored to a depth of 196, 110, 175, 68, 37, 35 and 40 feet respectively. A number of graphite-bearing beds or zones were cut by the drill, varying in width along the course of the holes from 2 to 19 feet, and in quality from lean to rich. The rock bounding the mineral was made up of crystalline limestone and altered granite, both of Archæan age, and on the whole it drilled easily and at small cost per foot. Occasional delays were caused by the gravel of the overlying drift getting into the bore-holes. The gross cost of the work was $487.82, or 74 cents per foot; and the net cost to the operator, 48 cents per foot. For the depth drilled the cost for diamonds was low, amounting to but $31.13, or 5 cents per foot.

On 1st May 1902 at the request of Mr. George C. Gibbons of London, Ont., and others, the drill was shipped to South River and thence taken 13 miles farther west by road to lot 136 in concession B, Lount township, Parry Sound district, belonging to the above parties. This property shows some outcroppings of magnetic iron ore which it was desired to explore by means of the drill. Operations continued until 24th May, by which time three holes had been bored to depths of 29, 31 and 92 feet respectively, a total of 152 feet. The formation of hornblendic rock interspersed with occasional narrow quartz veins was hard to drill, making the wear and tear on diamonds amount in the gross to $27.87, or 18 cents per foot. The total cost was $278.26, or $1.83 per foot, and the net cost to the operators (after deducting the Government's share, 35 per cent.) $180.86 or $1.19 per foot. Several veins or bands of magnetite, for the most part of narrow width, were struck.

From here the drill was moved about half a mile across country to lot 137, in concession B of Lount township, the property of Mr. George Archer of Mecunoma P.O., to prospect for

magnetic iron there. The duration of the work was from 2nd June to 7th June. Only one hole was bored, and that to a depth of 50 feet, through hornblende and mica schist, and without striking any iron ore. The total expenses amounted to $61.13, or $1.22 per foot ; and the net cost to the operator, 80 cents per foot. The loss in diamonds came to 24 cents per foot on the gross amount.

On 9th June the drill was taken to Mr. George W. Fowke's property, lot 32 in the eighth concession of Lount township, in the same neighborhood as the two previously explored locations. This also was reported to show outcroppings of iron ore. The drill was in operation for six days and sank two holes to a depth of 51 and 30 feet respectively, a total of 81 feet, through a formation of hornblende gneiss and hornblende schist, in each of which a narrow vein of magnetite was cut. The exposures of this iron ore were found to be not very continuous in depth or length. The gross cost of the work was $72.69, or 90 cents per foot ; and the net cost 58 cents per foot. Wear and tear of diamonds amounted to 19 cents per foot on the gross expenditure.

Having the drill in the district, John Paget and others of Sundridge also decided to take advantage of the opportunity and engage it to explore a quartz deposit of theirs supposed to be auriferous. This outcrops on lot 20 in the tenth concession of Strong township, Parry Sound district, and here on 24th June the drill was taken and set in operation. From then until 8th July two holes were bored, one to a depth of 70 feet and the other to a depth of 40 feet, a total of 110 feet. The formations drilled through were reported by the drill manager to be quartzite, gneiss and the quartz body itself. They proved to make very hard drilling, even polishing the diamonds, and as a result progress was somewhat slow. The gross expenditure amounted to $160.50, or $1.46 per foot ; and the net to 95 cents per foot. The cost included in the gross expenditure for loss of diamonds was $36.20, or 39 cents per foot.

From about 9th July until near the end of November the drill was employed by Mr. Lewis Stockton of Buffalo, N.Y., and his associates, for the purpose of testing for nickeliferous ore on an outcropping of rock on lot 5 in the fifth concession of the township of Falconbridge, Nipissing district, situated about 12 miles north of Wahnapitae station on the C. P. Ry. The drill manager reported the formation to be a dark quartzose schist, very hard and compact, and having crystalline texture, and frequently much fractured, all combining to make the drilling slow. The diamonds were to a smooth polish, entailing constant resetting and a heavy consumption of blank bits. The severe strain put upon the drill itself whenever a fissure was struck in the rock caused considerable wear and tear to the whole plant, so that altogether the drilling at this property was the most expensive done during the year. The gross cost amounted to $2,095.35, or $3.43 per foot ; and the net cost to the operators, after the deduction of the Government's share of 35 per cent, to $1,361.95, or $2 23 per foot. The item for diamonds in the gross figure amounted to $695.54, or $1.14 per foot. In the work of exploration five holes were bored to the depths of 146, 125, 150, 47, and 142 feet respectively, a total of 610 feet. They were put down from both sides of an outcropping of quartzose schist rising above the low swampy ground of the locality. Apparently no mineral of any kind was visible over the surface of this rock ; but prospecting by the magnetometer had found strong magnetic attraction on the spot, and the presence underground of a body of nickeliferous pyrrhotite was accordingly inferred. The drill holes were located with the view of striking this supposed ore body, but nothing of value was encountered.

Immediately on the completion of drilling in Falconbridge, the drill was shipped to St. Mary's at the request of Mr. H. B. Harrison of Owen Sound, to explore the limestone formation on lot 17 in the Thames concession of Blanshard township, county of Perth, about a mile and a half west of the town of St. Mary's. Bed rock lies at a considerable depth below the

surface over most of the lot and it was only after several preliminary tests that the higher points were located, from 7 to 48 feet down. The drift being made up of clay and many boulders it was necessary to drive stand-pipes to bed rock in each of the four holes sunk, preparatory to drilling the limestone. The deepest hole, 48 feet, was opened up by Mr. Harrison with a churn drill, in order to save time while the others were being drilled. Three of the holes were located along the bank of the St. Mary's river and the fourth at a point about one mile north. They measured in depth 87, 65, 59 and 88 feet respectively, or a total of 251 feet, not counting the 48 feet done by the churn drill ; 67, 52, 52, and 40 feet being their respective depths in the limestone. The latter made easy drilling ; but the boulders in the clay bed gave considerable trouble, and this, with the time lost in finding suitable locations for the holes and the expense for casing brought the total cost to a higher figure than if the drilling had been in limestone alone. The gross figure was $499.77, or $1.99 per foot ; and the net, $324.86, or $1.29 per foot. The expense for diamonds used was small for the distance sunk, being only $7.35, or 3 cents per foot.

From here, after undergoing some repairs at St. Mary's, the drilling plant was sent to Port Colborne to bore again in limestone formation on part of lot 32 in the first concession and parts of lots 19, 20 and 23 in the second concession of Humberstone township, county of Welland. The work in this instance was done by Mr. John H. Smith of Port Colborne, the purpose being to ascertain the quality of the limestone with depth and also at those points where covered with clay. On lot 23 in the second concession nine holes were drilled from 14 feet to 41 feet in depth ; on lot 20 in the same concession, four holes, from 10 feet to 31 feet in depth; and on lot 19, one hole 23 feet in depth, total amount being 309 feet. The formation as reported by the drill manager was found to be made up of a shallow stratum of limestone of a somewhat flinty nature overlying other strata of slate and flint and of these latter two mixed. It was severe on diamonds and bits so that this item of expense in connection came fairly high, in all to $146.90, or 48 cents per foot. The period of operation being in the middle of winter, namely from 5th January to 24th February, considerable difficulty was experienced in supplying water for use of the drill plant, nevertheless good progress was made. The total cost of the work was $831.69, or $2.69 per foot ; and the net, $1.75 per foot.

The several operations carried on for the season of 1902 may be summed up as follows :

Summary of Boring Operations.

Firm or Company.	Location of drilling.	Kind of mineral.	Total depth drilled.	Total cost.	Total cost per foot.	Net cost.	Net cost per foot.	Gross cost of diamonds per foot.	Drill.
			ft.	$ c.	$ c.	$ c.	$ c.	$ c.	
Rinaldo McConnell.....	North Elmsley township	Graphite ...	661	487 82	74	317 10	48	05	S
George C. Gibbons.....	Lot 136, concession B, Lount township.....	Iron ore	152	278 26	1 83	180 86	1 19	18	S
George Archer	Lot 137, concession B, Lount township.....	Iron ore	50	61 13	1 22	39 74	80	24	S
George W. Fowke	Lot 22, concession VIII, Lount township...	Iron ore	81	72 69	90	47 25	58	19	S
John Paget *et al*..	Lot 20, concession X, Strong township	Gold ore.....	110	160 50	1 46	104 33	95	39	S
Lewis Stockton *et al*	Lot 5, concession V, Falconbridge township.	Copper-nickel..	610	2,095 35	3 43	1,361 95	2 23	1 14	S
H. B. Harrison.....	Lot 17, Thames concession, Blanshard township	Limestone	251	499 77	1 99	324 86	1 29	03	S
J. H. Smith.....	Lots 19, 20 and 23, concession II, Humberstone township	Limestone	309	831 69	2 69	540 61	1 75	48	S
		Total	2,224	4,487 21	.....	2,916 70	.....	.....	
		Average....	....	.....	2 02	.....	1 31	44	

SUMMER MINING SCHOOLS.

BY W. L. GOODWIN.

I beg to submit herewith a report on the work done in the schools or classes for the practical instruction of miners and others in the mining districts of the Province conducted last summer by Mr. J. Watson Bain, of the School of Practical Science, Toronto, and myself.

The Season's Itinerary.

On Wednesday 14th May, I left Kingston by the Kingston and Pembroke railway for Calabogie, accompanied by James Denny. The class was opened at seven o'clock that evening, and was carried on until Wednesday 21st May. On Monday 2nd June, preparations were begun for the remainder of the summer's work. I left Kingston on 4th June, and was joined at Central Ontario Junction by Mr. Bain, who accompanied me thereafter. We drove to Deloro, where the class was opened the same evening. The work was completed here on 11th June On the 12th we drove to Cordova Mines, and opened the class at 7 p.m. It was continued until 19th June, when we drove to Havelock on the C.P.R. to take train for Sudbury. I went by way of Sharbot Lake and Renfrew, while Mr. Bain took the route via Toronto and North Bay. In Renfrew I collected crystalline limestone and garnet. Sudbury was reached on Saturday morning 21st June. I proceeded immediately to Copper Cliff, and opened the class there in the evening. Mr. Bain joined me on Monday 23rd June. The class was continued until Saturday, the 23rd, when we left for Victoria Mines. The class there was opened on Monday, and closed on Saturday 5th July. On the following Monday we left Victoria Mines for Rat Portage, via Sudbury. Rat Portage was reached on Wednesday 9th July, and we were at once taken in hand by Mr. T. R Deacon, managing director of the Mikado mine, who placed the Company's steamer at our service, and accompanied us to the mine. The class was opened that evening, and closed on Monday 14th July. On the 15th we took the steamer *Heather Bell* for Rat Portage, and proceeded on the 16th by the *Ethel* to the Black Eagle mine. The class was begun on the same day, and closed on Monday 21st July. On Tuesday, the 22nd, we proceeded by the *Edna Brydges* to Rat Portage, but did not succeed in catching the C.P.R. train, which connected with Wednesday's steamer from Fort William. We left Fort William on Friday. In Port Arthur I saw specimens of hematite from Steep Rock. This deposit was located by a prospector who became acquainted with iron ores by attending the class in Mine Centre in 1899. We reached Sault Ste. Marie on Saturday 26th July, and went on same day by the *Minnie M.* to Michipicoton Harbor. The Helen mine was reached on Sunday, and the class opened there on Monday. On Saturday 2nd August, I went by train to Wawa station and arranged for transportation of luggage by wagon to the Grace gold mine. Mr. Swenson, superintendent of construction for Messrs. Foley Bros., kindly offered to send us over in his buckboard. This saved us a six-mile walk over an unfamiliar trail. On Sunday morning we walked to Wawa station, where Mr. Gregory, agent for Foley Bros., met us, and sent us on our way by the buckboard. We reached the Grace in time for dinner, and were welcomed and entertained by Manager Nissen and Mrs Nissen. The quiet Sunday in this well-ordered camp was very restful. The class was begun on Monday. On Tuesday 5th August, I drove to the Mission, leaving Mr. Bain to complete the work at the Grace

and Rock Lake mines. I have to thank the officials of the Algoma Central Railway Company and the Algoma Transportation Company for much help and many courtesies.

The Captain of the *Minnie M.* made an early start from the Harbor to catch the C.P.R. steamer for Owen Sound. This he succeeded in doing by a few minutes, in spite of various delays. It was impossible however for me to get the luggage transferred in time, and I was obliged to go on by train next day by way of Sudbury and Renfrew. I reached Kingston on Friday, August 8th.

Mr. Bain completed the work at the Grace mine on August 8th, and arrived at Sault Ste Marie on the 10th. After spending two days there examining the works of the Lake Superior Power Company, he proceeded to Rock Lake and opened the class there on August 14th. The class was continued until the 20th, on which day Mr. Bain left for the east.

Free transportation of our heavy luggage was given by the Canadian Pacific, Kingston and Pembroke, Central Ontario, and Algoma Railway companies.

The Class at Calabogie.

The class here was held in the township hall, which had been bespoken and prepared by Mr. William Fairbairn, foreman in the lumber business of Messrs Carswell & McKay, and Mr. J. Johnston, B.A., teacher and township clerk. It opened in the evening with an attendance of 55. Arrangements were at once made to hold classes at 3 p.m. as well as at 6.15 p.m. The former class suited those who had long distances to come. An occasional morning class was added. Many of the farmers in this district are more or less practised in prospecting and are anxious to improve their knowledge of minerals. Several of them drove from four to six miles every day to reach the class. This is an interesting mineral region, and members of the class occasionally brought in specimens of valuable minerals collected in the neighborhood. Among these may be noted molybdenite, from the farm of Edward Hunter, 1¼ miles south of Calabogie: graphite from several localities, (one specimen was a mixture of graphite and hematite, both in bright scales) fibrous hornblende, magnetite, talc and zincblende. Iron pyrite crops out on the farm of Joseph Dillon on the north side of the village. The limestone in the immediate vicinity is dolomitic, probably sufficiently so to be classed as true dolomite. In the cutting near the station it can be seen banded with magnetite. Stratified limestone is found four miles to the westward, at the head of the lake, where the land is correspondingly level and suitable for farming. Several excursions were made to mineral localities. Good specimens of molybdenite were collected at Edward Hunter's, where I was informed that pieces of the mineral had been ploughed up over a considerable area Some years ago several hundred pounds were taken out of a vein near Hunter's house. Through the kindness of Dr. E. G. Cooper I was able to visit Caldwell's iron mine, where we found Cyrus Holden hoisting ore,—a good looking magnetite, with occasionally a little pyrite. Malachite stains were noticed on some pieces. The deposit consists of a series of parallel veins with a strike nearly west, and measuring about 400 feet across the strike. The vein then being worked was 62 feet wide at the bottom, and was dipping at about 45°. Mr Harry McArthur, superintendent for Carswell & McKay, took me to see a vein of talc and asbestos about seven miles west of the village. The vein is in a dolomite bluff which forms the west face of the only dolomite ridge in the vicinity, the surrounding elevations in this rugged district being granitic. There are several veins of fibrous material associated with massive white talc and calcite. The fibres are in some places several feet in length. A few miles further west is the Black Donald graphite mine, which was being equipped with a modern washing and concentrating plant run by water power. Parties were engaged in building a road from this mine to Calabogie. If the success of the mine warrants it, it should pay the company to develop the water power along the route and run an electric tramway from the mine to the Kingston and Pembroke railway, a distance of about 14 miles.

The total number of students at Calabogie was 55 and the average daily attendance was 40. I take this opportunity of expressing my indebtedness to Messrs. Wm. Fairbairn, J. Johnston, W. Moore, Harry McArthur, and Dr. E. G Cooper for much assistance and several pleasant and profitable trips.

The Deloro School.

The hall built by the Canadian Goldfields Limited, for the use of their employees and friends was again offered us as a place of meeting for the class. The basement has been completed and is used as the meeting place of the literary and dramatic club, and also as a reading room and library. The books in the library are given out once a week and are evidently in demand. The whole building is nicely finished and well furnished. The class was held in the basement, and was divided into an elementary and an advanced section. The elementary class studied the minerals, some thirty-five in number, which have been used in previous years. For the advanced class, composed of those who had attended last summer, a set of minerals had been provided consisting of less common species and rarer varieties of the common kinds. This division of the class was found to work satisfactorily, and was adopted in all places in which the class was being held for the second time. It will be possible to continue in this way the process of education, by providing several sets of minerals and adding to these sets of typical rocks.

Several evening lectures were given, illustrated by lantern slides. These lectures served as an introduction to the study of geology, and were always well attended. Most of the mines, like the Canadian Goldfields, have electric lights, so that an electric lantern can be used to illustrate lectures Through the kindness of the manager, Mr. Kirkegaard, I was able to visit the works of Mr. Joseph James of Actinolite, where a mixture of actinolite, talc, and mica is ground into a roofing material. Actinolite (formerly Bridgewater), is eighteen miles from Deloro in an easterly direction. Deposits of mispickel have been found there. There is also a quarry of crystalline limestone which can fairly lay claim to the designation marble.

Specimens of molybdenite were brought to the class by Mr. W. M. H. Jones. These specimens were found on lot 24 or 25 in the fourteenth concession of Anstruther township The boulders in the neighborhood afforded a considerable variety of rock specimens. A number were collected and used to illustrate the last lesson with the advanced class.

Thanks are due the manager and the staff for many courtesies, and to Mrs. Kirkegaard for her pleasant hospitality.

At Cordova Mines.

Here we found the church completed which was being planned last summer, and the basement was in use as a lecture and entertainment room. This part of the building, by the way, was put up by the company, and given as the foundation of the church structure, an economical co-operation. The basement was fitted up with tables and benches for our use, and as it was equipped with electric lights (which are also supplied free to the church) it answered our purpose admirably Both day and evening classes were well attended, and the evening lecture, taxed the room to its limit. Quite a town is growing up around this mine, or group of mines, for such a number of independent workable veins can hardly be described as one mine. A large number of new buildings had been put up since our last visit, and building operations were in evidence everywhere.

Manager Kerr drove us to the new power house on Deer lake. This was well advanced and the flume line from the falls was approaching completion. At the invitation of Mr. Kerr we visited the great stope in No. 3 shaft, where a body of ore is exposed in the second level between 40 and 50 ft. wide, and carrying good values. A similar and even larger stope was seen between the second and third levels of No. 1. In some places the pyrite is in considerable

masses which are said to assay from four to six ounces a ton, the sort of specimens which would rejoice the heart of a "boom" prospectus manufacturer. But this whole body of ore is of good grade, and is sufficient in itself to keep the mill going merrily for twelve months. These great stopes contradicts an impression which seems to be prevalent regarding the ore deposits of Eastern Ontario, which are often spoken of as 'pocketty' and of small extent. While this may be true of some of the deposits, as it is in every mining district, it cannot be taken as a general description, and a more thorough examination of the iron, zinc, lead, mispickel and other ore bodies in this district should be made before the least credit should be given to such a statement.

Mr. Edward Shannon reported molybdenite from Peterborough county not far from Cordova mines. Fine clean dolomite was noted in lot 23 in the first concession of Belmont. Many specimens of bog ore, chlorite, tourmaline and pyrite were collected for the use of the classes. The chlorite and tourmaline were found in a cross-cut on No. 7 vein, near the point at which the vein crosses the road leading from the office to the boarding-house. Chlorite schist, with beautiful cubes of pyrite, were obtained from the same place and also from No. 7 dump.

While at Cordova Mines we were the guests of the company, which means a great deal in this case.

Classes at Copper Cliff.

Here the classes were held in the Gorringe club as before, tables being put in by the company. Owing to the business of consolidating the Canadian Copper Company and other interests into the International Nickel Company, the working force had been very much reduced before the classes were opened, and men were being laid off almost every day. As the company thoughtfully gave the married men and older hands the preference, very few young men were left to attend the classes. In spite of this the attendance was much more satisfactory than last year, showing a growing interest in the work. While here I was the guest of the Rev Jas. White, an enthusiastic student, and a power for good in this, the largest mining camp in Ontario.

The classes were held at 4 p.m. and 7 p.m Evening lectures were given at 8.30, illustrated by lantern slides and drawings. The local geological features were discussed by Mr. Bain in such a way as to show the bearing on the ore deposits of the neighborhood. Through the kindness of Mr. White I enjoyed a visit to the Stobie and Frood mines, three miles north of Sudbury. The Stobie was closed down, while the Frood was working with half the usual complement of men. Accompanied by Mr. White, we rode through the woods to the Creighton, eight miles west of Copper Cliff, hoping to replenish our stock of pentlandite. The heavy rain interfered with this work. and we were obliged to content ourselves with a few poor specimens. The immense body of ore in this mine was being worked as a great quarry. The ore body has been shown by test pits to extend northwards to the hill, and was being examined by the diamond drill. The ease with which large quantities of high grade ore are mined here explains the temporary closing down of so many smaller mines. A mining village is rapidly growing up, and the company is providing for a regular arrangement of the cottages and stores along streets. The rough ride back by a ragged bridle path with a drenching rain beating down upon us made the pentlandite come dear! But a change of clothes and the good cheer of Mrs. White put all right again.

Specimens of a recent conglomerate were collected not far from the west smelter. This conglomerate was formed by the cementing together of drift pebbles and sand by limonite produced by the weathering of the pyrrhotite, or, perhaps, the diorite. Near the end of the trestle connected with the smelter is a gravel pit, where sand and gravel similar to that of the conglomerate is found.

The total number registered at Copper Cliff was 32; the average attendance was 20.

This opportunity is taken of thanking the manager, the president and other officers of the company for many kindly attentions.

At Victoria Mines.

Here the classes were held as usual at 4 p.m. and 7 p.m. The school house, completed since last summer's visit, was fitted up with temporary tables and benches, in place of the fine new school desks which would have suffered from the hammering, heating and grinding of the minerals. The Company also put in an electrical wire so that the lantern could be used for the evening lectures. The total enrolment was 22, and the average attendance 14. Two evening lectures were attended by about 30.

On Dominion Day we walked in to the mines about two and a half miles, and saw the holiday sports of the miners, most of whom are French and English Canadians, with a few Finlanders, Swedes and Russians. There is a larger proportion of women and children than in some of the more western camps, and the beginnings of home life are seen, with its softening and elevating influences. A shooting match, races, jumping, and other sports usually seen on such occasions were varied in a most interesting way by contests in hand-drilling. The contestants competed in pairs, one man striking and one man turning the drill. At the end of two minutes the men changed, almost without missing a blow. The match was won by James Langdon and Edward Cretzchmann, (Russian), who drilled $12\frac{1}{4}$ inches in 10 minutes,—said to be a good record for the hard rock in which the drilling was done.

A visit was made to the Worthington mine which had been unwatered a short time before. Ore was being raised from the 200-ft. level—the usual mixture of pyrrhotite and chalcopyrite. The lead can be traced $1\frac{1}{8}$ mile east of the station. We were pleasantly received by Mr D. L. Lockerby, the managing director of the Dominion Mineral Company, who gave us every assistance in collecting specimens The foreman, John Dwyer, who has spent the last twelve years at the mine, guided us to the outcrops which stretched easterly several miles. From several of these prospects we collected good specimens of gersdorffite and niccolite. There is a vein of loose granular gersdorffite in the prospect owned by the Hamilton Nickel Steel Company. The specimens collected made a heavy load for the walk back to Victoria mines, and the load was not lightened by the rain which began to pour down soon after the railway track was reached. However, it is not often that the mineralogist is lucky enough to fill his bag with niccolite and gersdorffite. We took our drenching cheerfully.

Manager Hixon selected specimens of matte and slag to add to our store. We also succeeded in getting good samples of sperrylite gossan.

The slag is granulated at Victoria mines by a process similar to that used at Copper Cliff, but Mr. Hixon has introduced an improvement which enables him to distribute the slag over a large area and to completely control the stream. The device is very simple, being an application of the injector principle. A stream of water is driven through a pipe into which the slag falls through a second pipe opening inside the first at such an angle that the slag is caught by the stream and driven along to the exit. By moving the pipe the slag can be distributed so as to fill up hollows and swampy places. The same method was tried with the matte, but was abandoned on account of the frequent explosions. Mr. Garr, smelter foreman, kindly hunted up specimens of the granulated matte for us, and through the kindness of Mr. Forsythe we secured pieces of stalactitic matte, the iridescent colors of which were very beautiful.

Our stay at Victoria mines was made pleasant by the hospitalities of Mrs. Hixon and by the many courtesies of Mr. Hixon and his staff.

The Mikado Gold Mine.

Here we found our old friends, Manager McMillan and Captain Mackenzie, who gave us the hearty welcome which is always ready at the Mikado. The attendance was unusually good considering the pay roll,—only about 50. There were 31 enrolled, and the average attendance was 17. The attendance at the illustrated lectures was large, averaging 47. This camp is an example of what can be done by a manager who takes care of his men, providing them with homes for their families, a school for their children, and encouraging them to practise the virtues of sobriety and industry. It is said that every Mikado miner has a healthy bank account. It is a pretty sight to see, in this out of the way place, forty miles from the nearest settlement, quite in the wilderness, twenty or thirty children going to school up the little street which is lined with neat, prosperous looking cottages. The teacher, Mr. John C. Little, gave us the run of his rooms and library,—welcome privileges. The house of the manager was always open to us, as was that of the bookkeeper, Mr. Alex. Milne. Indeed we were everywhere made to feel at home among our good friends at the Mikado.

The Black Eagle Mine.

This is the gold mine formerly called the Regina, situated on Whitefish bay. We were met by Mr. Norman McMillan, who welcomed us to his home, where Mrs. McMillan made us comfortable during our short stay. The class was held in the hall used for religious services and social gatherings. A separate building has been put up for the school. The total enrolment was 48, and the average attendance 22. One illustrated lecture was given, the attendance at which was about fifty. Accompanied by Manager McMillan and Capt. Trethewey, we made a lengthy visit underground. There was every evidence of the difficult task undertaken by the present management. The mine had been gutted and left in an almost impossible condition, particularly noticeable being the absence of timber. Several interesting short excursions were made. Just across the bay is the farm of Fred. Caron, guide, hunter, farmer, raconteur. We found Fred's Indian father-in-law weeding the potato patch, and took a snap shot in spite of his protest. Caron entertained us for an hour with stories of his experiences in the woods and on the lake.

On Sunday the whole camp, men, women and children, went on board the company's steamer and started for Whitefish rapids. An organ had been put on board, and the men sang hymns in a way which gave unmistakeable evidence of their being used to this manner of spending the Sabbath. At the Rapids, a beautiful spot, we saw a strange sight, the steamer *Josie*, with scows, etc., a complete mining outfit, being portaged to Whitefish lake to be taken to Flint Lake mine, a prospect being opened up under the management of Mr. Th. Breidenbach. The mine is about eight miles from the Rapids. Above the Rapids are the scows and other property of the Rat Portage Lumber Company. In the afternoon a religious service was conducted by Mr. McMillan, and the spirit of it was excellent. It is to be regretted that he and Capt. Trethewey have not a brighter prospect in the mine.

A pleasant incident, among the many, was a miners' dance held in the school house. At midnight the night shift came up the hill with the candles glimmering in their helmets, very picturesque and quite unpremeditated.

Mr. and Mrs. McMillan made us so much at home and in every way so comfortable at the Black Eagle, that our short visit was terminated with sincere regret. We thank them for their hospitality, and the officials of the mine for many courtesies and much assistance.

Rat Portage.

No classes were held here this summer, as it has been the policy of the Bureau of Mines to confine the work to the mining camps, into which have now been drafted a great majority of the men really interested in minerals. In this brisk town we saw marks of the

epidemic of fires which broke out during the preceding winter. The familiar old Hilliard House had disappeared, and with it a large part of the block. In spite of the failure of many investors in the mines of the district to realize on their investments, the town seems to be holding its own in many respects. The fever of speculation is departing. Legitimate enterprise is taking its place. Solid work in lumbering, fishing, mining, and manufactures will yet make this a large and thriving centre of industry. Through the courtesy of Mr. T. R. Deacon, I saw something of the lumbering and wood manufacturing industry. With unlimited water-power and easily accessible timber supply, this should be the place for building up industries of this kind to supply the whole of the West.

The enterprising western towns of Port Arthur and Fort William are also feeling the impetus of rapid development, and of the enormous increase in the transhipment of grain. The Canada Northern has given new life to Port Arthur in particular. With better harbor accommodation these towns should in the near future expand into large shipping cities.

Class at the Helen Mine.

The management of this mine had been changed since the class was held there last summer, being in charge of Captain Buzzo, who has had large experience with the hematite ores of Michigan. A considerable proportion of the miners and other employees were from the same iron district (Ishpeming), where the ore is got out in much the same way as at the Helen. The force of men had been reduced to about 250, without, it was stated, decreasing the output of ore. These Ishpeming miners are largely Manxmen, as is seen by such names as Buzzo, Quayle, Moyle, etc. Boyer lake was nearly pumped out, being reduced to a small patch of water only six feet deep. The precipitous banks sloped down almost like a funnel. The hill of ore was fast disappearing,—Mt. Hematite was reduced to a small peak upon which was planted the destroying drill in the hands of two stalwart Swedes. On the lower level two shafts were being sunk in good ore, and tunnels were being driven fron Boyer lake to catch these shafts which were making a good deal of water.

The class was held in one of the dining rooms kindly placed at our disposal by Capt. Buzzo. The total number enrolled was 52, and the average attendance 33. Three evening illustrated lectures were given, and these were well attended.

A botryoidal incrustation of a manganese compound, probably pyrolusite, was noticed on the rocks near what had been the shore of Boyer lake. It was deposited in such a way as to suggest that it had existed as manganous carbonate, or some other salt in solution, and had been oxidised at the surface where the water wet the rocks. Similar incrustations of limonite were noticed on the same rocks.

By walking 3½ miles on a good trail, Wawa was visited. The intervening country is extremely rough. Wawa is beautifully situated at the south end of Wawa lake, which extends northward six miles. We were shown specimens of galena and copper pyrite said to have been found near the lake.

We had arranged to walk from Wawa to the Grace mine and send the luggage around by Michipicoton Harbor and the Mission, a distance of about 25 miles ; but we were saved the long tramp and the uncertainties of an unfamiliar and not very definite trail, through the kindness of Mr. Swenson, superintendent for Messrs. Foley Bros., contractors, who lent us his buckboard. The drive from Wawa through the woods to the Mission was delightful, and converted us to the buckboard as a general-purpose means of locomotion where the roads are not quite as smooth as streets.

At the Grace Gold Mine.

The Grace mine was found to be much advanced in development under the energetic management of Mr. Norman Nissen, who, with Mrs. Nissen, welcomed us to their charming

home. Here, indeed, we had a real Sunday at home. Work on the stamp mill and power plant was nearing completion, and everything pointed to the early advent of the Grace among the producing mines. There were fifty men employed, the underground work being in charge of Capt. Harris.

The class was held in the dining room, and was attended not only by the employees at the Grace, but also by several from the Manxman, two miles away, the total enrolment being 30, and the average attendance 23.

Rock Lake Copper Mine.

The difficulties in keeping a class together here were somewhat unusual. Most of the men are drawn from the farms and villages of the district, few of them living at the mine. It is thus hard to keep them together in the evening, the only time available for the day shift. There were 150 men employed. The ore is chalcopyrite with small quantities of bornite and chalcocite. One shaft was being worked and was down 420 feet. There is a good shaft house, a church, a school house, and other buildings. The mill is situated two miles distant on the shore of Rock lake and is connected with the mine by a railway. A railway from the mine to Bruce Mines was under construction.

The total number attending the classes was about 30, and the average attendance 12. The work done was excellent.

For this educational work two modifications of the present procedure are to be recommended. In the first place, the time devoted to each place should be at least doubled. The work as at present carried on is too hurried and leaves an impression only on the brightest men: In ten days (five at present) the ground could be covered much more thoroughly and the slower intellects would not undergo the discouragement very noticeable under present conditions. To get over forty mineral species and varieties in five lessons of about one and a half hours each is not easy. In the second place, the range of study might be extended to a greater number of species, and rocks might also be included. In this way the men in each camp could be classified. This was done to a certain extent during the tour just completed. Wherever men were found who had attended the class during the previous summer, they were set at work on a different set of minerals, including some rarer species. As the money now annually voted is not quite sufficient to meet the expenses of the classes as conducted during the past few years, it is plain that the adoption of these recommendations involves one of two alternatives, either fewer camps visited or a larger vote for expenses.

MICHIPICOTON MINING DIVISION.

BY D. G. BOYD, INSPECTOR.

I beg herewith to present the sixth annual report on the Michipicoton Mining Division. The office at Michipicoton River was opened on 21st May, and continued open until 1st November.

During the period 104 miner's licenses were issued, and 103 mining claims registered. The total number of licenses issued during the year was 132, 28 being issued from Toronto.

The claims registered numbered 126, of which 23 were registered at Toronto while the office at Michipicoton River was closed.

The amount of money forwarded to the Treasury Department from the office at Michipicoton was $1,983, and the amount received at Toronto $741, making a total of $2,724. Of this amount $1,320 was received for miner's licenses ; $882 fees for additional mining claims ; $90 fees for transfer of claims, and the balance, $432, fees for patents.

Compared with the figures for 1901, there is a decrease in the number of licenses issued of 55, in the number of claims registered of 38, and in the total receipts of $2,641.50. These large decreases are to be accounted for by the continued withdrawal of the lands on account of the land grant accruing to the Algoma Central Railway Company, and by the fact that most of the licensees holding claims within the ten-mile area of Michipicoton Harbor have performed all the working conditions required by the regulations, and as a result hold their claims free from any further license or renewal fee.

As regards actual development, more work was done in the past season than ever before ; the output from the Helen iron mine was greater; stamp mills were completed at the Grace and Manxman gold mines ; diamond drilling was done all season at the Frances iron mine, and at the Emily gold mine, on a bay off Dog lake. At the Josephine iron mine machinery was installed and a shaft started.

Emily Gold Mine.

The Emily mine, situated on a bay running off Dog lake, was visited on 18th September, at which time the only work being done was diamond drilling with a prospector's hand drill, a crew of ten men being at work.

On 30th October I was informed by Mr. A.B. Willmott, mines manager of the Algoma Commercial Company, that drilling had ceased and that a shaft was being sunk by a crew under Mr. E. H. Dodd, which was 25 feet deep at that time.

Josephine Iron Mine.

This property has been thoroughly tested by diamond drills and this season saw the commencement of mining operations. On the south shore near the west end of Parks lake a vertical shaft 6 feet by 8 feet inside the timbers, was being sunk, which at the time of inspection, 7th October, was 70 feet deep.

Machinery had been installed as follows ; An Ingersoll-Sargent 4-drill air compressor, one 25-h.p. upright boiler, one No. 5 Northey duplex pump, one James Cooper hoist, with drums 3 feet diameter and 4-foot face, and double cylinders 6 by 10 inches. The shaft is being put

down to connect with the ore body, and it was intended to sink to a depth of 300 feet and then cross cut.

The manager was Mr. T.H. Kneebone (late of Iron Mountain, Mich.) who had a crew of 15 men, 8 of whom were miners, working in three shifts of 8 hours each.

The Frances iron mine was not visited, as the work consisted of diamond drilling under the management of Mr. R. W. Seelye.

Brulé Harbor Copper Locations.

Locations BY 1, BY 2, BY 3, BY 4, owned by Mr. John Abell of Toronto, and situated about one-quarter of a mile east of Brulé Harbor, were inspected on 16th October. A contract had been let for a 50-foot vertical shaft which was being finished on that day.

Previous to this a tunnel had been driven 100 feet into a hill to tap a vein outcropping on the surface, which did not prove successful.

Helen Iron Mine.

The Helen mine was inspected on 23rd October when A. E. Buzzo was superintendent, F. U. Nelson, engineer, and Ambrose Teare, foreman, working with a crew of 232 men, composed of 177 underground and 55 surface men, in two shifts. The output was 1,200 tons per 24 hours. In addition to the machinery employed last year a 10-drill Ingersoll-Sargent air compressor had been installed.

The main shaft, situated 60 feet south of the pit, 6 feet by 14½ feet inside the timbers, and divided into three compartments—ladder-way and two skip-ways—timbered with 10 by 10-inch square timbers, close cribbed, was down to a depth of 198 feet, and a station was being cut out at the bottom. The hoisting shaft (temporary), 6 feet by 16 feet inside timbers, and double-tracked, was 51 feet deep from the bottom of the pit. The skips were being operated by the Lidgerwood hoist, formerly in use on the cableway.

From the bottom of this shaft drifting had been done 110 feet westerly and 300 feet easterly, the latter being called the south drift. At a distance of 78 feet from the shaft a drift was run north 80 feet, branching westerly 50 feet and easterly 100 feet.

The lake drift from the old bottom of Boyer lake, is 5 feet by 6 feet inside timbers, and runs 178 feet east, where it strikes the main shaft 86 feet down from the collar, then branches north 175 feet, at which point it connects with the first level west from the hoisting shaft.

The east tunnel is situated on the hill east of the workings, 5 feet by 6 feet inside timbers, and runs 300 feet easterly. At 200 feet from the entrance it turns south 125 feet, where it branches east and west 50 feet.

The main shaft is unwatered by a No. 5 Cameron pump, and the hoisting shaft by two Northey pumps, one 10 by 6 by 12 inches and the other 7½ by 6 by 10 inches. The lake drift is used for unwatering the workings.

The foundations for a new power plant have been completed west of the main shaft, and a double-drum hoist with drums 5 feet in diameter and 48 inches in face, and cylinders 14 by 30 inches, was in place. When completed, the skip road now in use will be abandoned and destroyed, and all the ore will be hoisted through the main shaft. At the time of inspection the ore was being taken from the open pit as mentioned in previous reports, and was also being milled down through three mills to the drifts below, where it was trammed to the hoisting shaft and elevated to the crusher.

The water in Boyer lake was completely pumped out, and pumping was done about every two weeks to keep it empty.

The amount of ore shipped from Michipicoton Harbor up to 1st November amounted to 289,324 tons. Of this 20,902 tons went to Midland, 3,149 tons to Deseronto, 53,221 tons to Point Edward, and 212,052 tons to American ports.

Lloyda Gold Mine.

The Lloyda gold mine is operated by the United Mining Company, Limited, of Niagara Falls. When about to visit the claim on 24th October I met the superintendent, Mr. W. A. Stowell, in Wawa, who told me the shaft was full of water, so I did not go out to the property. He also gave me the following particulars: Work started on 20th March and ceased on 15th September, during which time the shaft, which had been sunk 19 feet in 1901, was completed to a depth of 90 feet. Camps and an assay office had been built and roads cut.

A contract has been let for 100 feet additional sinking to be done during the winter.

Manxman Gold Mining Company.

Work on the main shaft on claim 1,229 stopped on 20th July. At that time the shaft had been sunk to a depth of 126 feet, and timbered to 120 feet in depth. At 100 feet drifting was done 20 feet south and 18 feet north, with a cross cut of 10 feet.

On claim "Mabel," No. 641, the work consisted in quarrying on a dyke of quartz porphyry, working on a face about 125 feet east and west, with an average height of 20 feet. About 300 tons had been quarried.

Sinking at an angle of 40°, a shaft 6 feet by 6 feet, 20 feet deep, had been put down on a small quartz vein in the dike with an average width of one foot.

At the time of inspection, 25th October, a ten-stamp mill (Fraser & Chalmers) was being installed. The foundations had been completed, the mortars were in place, and the mill building sided up. Power will be supplied by the engine and boiler formerly in use at the shaft on claim 1,229. The mill is situated on the shore of a small lake 1,000 feet southwest of the quarry. The ore will be conveyed to the mill by a horse tram. Thirty men were employed, five of whom were miners, the balance working on the buildings. Mr. Angus Gibson is manager, with Mr. J. W. Douglas as assistant.

Grace Gold Mine.

I inspected this mine 30th October, when the main shaft was 304 feet in depth and timbered to the bottom.

First level, depth 100 feet, no increase in drifts; second level, depth 200 feet; south drift 204 feet, an increase of 88 feet; north drift 115 feet, unchanged; third level, depth 300 feet; south drift 31 feet; north drift 50 feet. A winze was sunk, connecting the drifts on the second and third levels on the north side, 57 feet from the shaft. A raise of 16 feet had been made in the south drift on the first level.

Stoping has been done on first level, north drift, 100 feet, with an average height of 20 feet from the floor, and on the second level, south drift, 80 feet, with an average height of 20 feet.

On the surface a new head frame and shaft house have been built, and a ten-stamp Allis-Chalmers mill has been erected, equipped with stamps of 950 pounds, dropping 95 per minute; 1 Blake 7 by 10-inch ore crusher; three six-foot belt Frue vanners; and 1 automatic tailing sampler under the floor of the mill. Power is supplied by a 60-h.p. Corliss engine, the steam for which is generated by two 60-h. p. Mumford boilers. Two water tanks made of cypress wood, having a capacity of 5,000 gallons, are situated on the north side of the mill, which are fed by a Northey pump, having a 4-inch suction and 3-inch discharge from a pond to the south.

The ore is raised and dumped on a picking floor, then falls through a hopper on a car, and is hauled over a tramway trestle to the mill, situated 350 feet southwest, the power being supplied through a friction hoist, with drum 30 inches in diameter and 24 inches face, operated by a belt, and situated above the ore bins in the mill building.

The size of the mill building is 78 feet by 24 feet 8 inches; engine room 20 feet by 30 feet; boiler room 30 feet by 24 feet; the whole building being sheeted with corrugated iron. The mill was designed and built by the superintendent, Mr. P. N. Nissen. Fifty men were employed, 16 of whom were miners and muckers. The mill began running about the middle of October.

Work on Other Locations.

The Sunrise Mining Company have purchased the "Sunrise" claim, on which there is a shaft 25 feet deep. A contract has been let to Mr. Joseph Trembley for 100 feet additional sinking, who began the work about 1st November.

The Mariposa Mining Company purchased the claims owned by Messrs. Blackinton and Lewis, on which considerable work had been done. They had a gang of men at work on 30th October, building camps and improving the roads. Machinery had been ordered, and work will be pushed during the winter with a crew of from 15 to 20 men.

List of Licensees.

Appended is a list of licensees, giving place of residence, number of license, and number of claims (if any) registered during the year. Where not otherwise indicated, the licensees are residents of Ontario. Claims marked with an asterisk (*) are in dispute.

Name.	Residence.	No. of License.	Claims.
Abell, J.	Toronto	1,206	
Algoma Commercial Co	S. S. Marie	1,289	1,220
Andre, G	Michipicoton River	1,250	
Armstrong, H.	" "	1,304	1,324, 1,393
Armstrong, W. J	Guelph	1,312	1,397, 1,398
Barton, S.	S. S. Marie	1,277	1,410, 1,411
Beebe, W. D	Pleasantville, Pa.	1,213	1,392
Beggs, T. J.	White River	1,216	1,345, 1,348
Blackinton, A. B	Michipicoton River	1,280	1,363, 1,449
Blackinton, C. B.	" "	1,254	1,396
Boyer, B	S. S. Marie	1,279	
Brown, A. F	Michipicoton River	1,292	1,436
Buckley, H	S. S. Marie	1,305	1,412
Buckley, J. P.	Detroit, Mich.	1,303	
Cameron, A	White River	1,195	1,351
Campbell, T	S. S. Marie, Mich.	1,283	
Cash, J.	Michipicoton River	1,225	1,357
Charlebois, F	Wawa	1,227	
Clark, E. D	Guelph	1,309	1,407
Clergue, B. J	S. S. Marie	1,263	
Clergue, F. H	"	1,230	
Clergue, J. H.	"	1,264	
Cochrane, R. B	"	1,234	1,401, 1,419
Coleman, W	Michipicoton River	1,251	
Cressey, E. W	Bay City, Mich	1,302	
Culbert, D. S.	Wawa	1,208	
Davidson, J.	Ottawa	1,270	
Davis, J.	Wawa	1,177	
Dickson, J. L.	"	1,278	1,442
Dion, J. J. T.	"	1,286	1,378
Donovan, J.	Michipicoton River	1,273	1,418
Dorway, F. C.	" Harbor	1,224	1,358
Douglas, J. W.	" River	1,261	1,328, 1,416
Dowsley, G. W. O.	" Harbor	1,222	1,360
Doyle, K.	Wawa	1,241	
Dunlop, W. W.	Michipicoton Harbor	1,223	1,356
Dycie, J. G	" River	1,192	1,339, 1,374, 1,434
Dycie, M.	" "	1,171	1,338
Edey, M. C.	Ottawa	1,266	
Edey, R. W.	Bellirica, Que.	1,268	
Eldridge, R. C.	S. S. Marie, Mich	1,275	1,341, 1,420

LIST OF LICENSEES.—*Continued*

Name.	Residence.	No. of License.	Claims.
Enniskillen Mining Co	S. S. Marie	1,246	1,379, 1,380*
Estate of E. V. Clergue	"	1,233	
Everett, W	"	1,258	
Fournier, H. A	Michipicoton Harbor	1,212	1,354
Francis, G. F.	Pakenham	1,271	
Ganley, James	S. S. Marie	1,218	1,375
Ganley, Jos	"	1,255	1,409
Gemmill, D. W	"	1,176	
Georgi, J	Michipicoton River	1,262	1,415
Gibson, A	S. S Marie	1,214	1,352, 1,414
Godon, A	Missanabie	1,200	
Godon, J	"	1,202	
Godon, N	"	1,201	
Goodspeed, J. W	Grand Rapids, Mich	1,284	1,426, 1,429, 1,430
Goodspeed, T. H	" "	1,285	1,427, 1,431, 1,432
Guelph Mining Co	Guelph	1,311	1,371, 1,406
Gunn, D. A	White River	1,217	1,345, 1,348
Hopkins, W. G	Michipicoton Harbor	1,260	
Holbrook, H. B	Wawa	1,291	1,382
Holbrook, L. J	Watford	1,290	1,361
Holbrook, L. V	"	1,253	1,395
Hunt, J	Michipicoton River	1,287	1,364, 1,417, 1,441
Husson, W	Guelph	1,310	
International Mining Co	S. S. Marie	1,265	1,436, 1,445, 1,446
Johnson, A	S. S. Marie, Mich	1,276	1,423, 1,437
Johnston, E. J	" "	1,259	1,443, 1,444
Keenan, C	Michipicoton River	1,297	
Keenan, J	" "	1,210	1,369, 1,394, 1,399
Keusie, O	Berlin	1,193	
Kimball, W	Michipicoton River	1,197	1,421
Lake Superior Power Co	S. S. Marie	1,288	
Lawlor, J. H	Michipicoton River	1,178	1,353, 1,402
Legge, C. H	Gananoque	1,294	1,404, 1,439, 1,440
Legge, J	"	1,293	1,403
Lemieux, C.	Wawa	1,235	
Letellier, J. T	"	1,196	1,381
Lewis, M	Detour, Mich	1,184	
Lewis, W. H	" "	1,211	1,384, 1,388
Maginodon, W	Michipicoton River	1,226	1,359
Mahoney. D. J	S. S. Marie, Mich	1,238	1,367
Manxman Gold Mining Co	S. S. Marie	1,243	
Martin, C. E	Titusville, Pa	1,247	1,405
May, E.	Michipicoton River	1,203	1,373
Michipicoton Development Co	" "	1,191	
Miller, O. T	London, Eng	1,179	1,326
Miller, R. J	St. Thomas	1,172	
Myrick, E. B	Detroit, Mich	1,207	1,355
McCandless, A	S. S. Marie, Mich	1,286	1,424, 1,425
McDougall, J	" "	1,257	
McDougall, L	White River	1,272	1,342, 1,350
McDougall, W. H	" "	1,215	1,344, 1,347
McGillivray, W	Ottawa	1,267	
McKenzie, A	Detour, Mich	1,183	1,383, 1,387
McKinnon, C. A	S S. Marie	1,175	
McLean, J. R	"	1,245	
McRae, P. J	Detour, Mich	1,242	1,386, 1,390
Nelson, J. D	Michipicoton Harbor	1,188	
Nissen, P. N	" "	1,198	
Osborne, H	Buffalo, N.Y	1,186	1,330, 1,333, 1,337

List of Licensees.—*Concluded.*

Name.	Residence.	No. of License.	Claims.
Parks, G. F.	Wawa	1,237	1,413
Pettit, R.	S. S. Marie	1,274	
Piuze, J.	Wawa	1,301	
Pokorney, L. G.	Huntsville	1,249	
Pononish, A.	White River	1,190	1,346
Pratt, W.	Redwood Falls, Minn.	1,231	1,408, 1,422
Premier Gold Mining Co.	St Thomas	1,299	
Preneveau, G.	Missanabie	1,205	
Rankine, de L.	Niagara Falls, N Y.	1,185	1,329, 1,334
Rankine, R. F	Buffalo, N.Y.	1,187	1,332, 1,335
Reed, G	Michipicoton River,	1,295	
Reed, S. R.	" "	1,296	1,438
Ripley, J. O	S. S. Marie, Mich.	1,282	
Rogers, G. H.	Ottawa	1,269	
Rothschild, H.	Wawa	1,298	
Rothschild, H. J. M.	"	1 244	1,372
Schellin, T.	Michipicoton River	1,221	1,376
Schafer, F.	S. S. Marie, Mich.	1,204	1,340
Sheppard, G. W.	Buffalo, N.Y.	1,188	1,331, 1,336
Sjostedt, E. A.	S. S. Marie.	1,228	
Smart, Mrs. T. R.	Wawa	1,232	1,362, 1,448
Stribling, F. W.	S. S. Marie.	1,240	1,325
Struthers, W.	"	1,189	
Taylor, G. H.	Michipicoton Harbor.	1,252	1,327
Taylor, H. F.	S. S. Marie, Mich.	1,182	1,389, 1,400
Taylor, H. H.	" "	1,256	
Taylor, R. H.	" "	1,181	1,385, 1,428, 1,433
Thibault, N.	Wawa	1,219	1,377
Thompson, C.	Michipicoton River	1,281	1,400, 1,447
Todd, J. A.	Titusville, Pa.	1,248	
Touchette, J.	Missanabie	1,180	
Trembley, J.	Michipicoton Harbor	1,300	
Ward, W.	Pleasantville, Pa.	1,209	1,366, 1,391 *
Westcott, G.	S. S. Marie, Mich.	1,239	1,368
Wilde, J. A.	S. S. Marie.	1,229	
Wilmott, A. B.	"	1,199	

PROVINCIAL ASSAY OFFICE.

BY J. WALTER WELLS and A. G. BURROWS.

This office was opened in July 1898 by the Bureau of Mines, with the view of promoting the prospecting and exploratory development of mineral lands in Ontario. It offers to prospectors and owners of mineral lands an opportunity of securing reliable assays, analyses and other commercial tests of ore samples at a nominal cost

The office pays attention particularly to the needs of prospectors, who as pioneers deserve all the encouragement and assistance possible, in a large Province like Ontario where immense tracts of unexplored rocky country, more or less interspersed with arable land, are liable to carry economic ore deposits. That prospectors and mining men in Ontario appreciate the opportunities offered by a public testing laboratory, may be judged from the following annual records of laboratory determinations:—

	1899	1900	1901	1902
Assays and analyses	1,651	2,215	2,949	3,163
Identifications, qualitative examinations, etc.	304	187	487	349

The office is located in Belleville under an agreement with the Corporation of that city, by which the latter undertakes to provide suitable quarters It occupies two flats at No. 24 Victoria Avenue. The ground floor is divided into (1) office, (2) sample room for rough samples on exhibit, (3) crushing room for pulverizing samples. Supplies of acids, alkalis, gasoline and other dangerous chemicals are kept under ground in the basement. All the space allotted for the use of the office is at present used, and two extra rooms could be employed to advantage.

Work done for Bureau of Mines.

The work of the office during 1902 included the following services rendered directly to the Bureau of Mines :—

(1) Issuing laboratory reports on samples sent in by Government geologists and survey parties exploring the unsurveyed portions of western and northern Ontario. These reports are published in the annual report of the Bureau of Mines when of sufficient interest to the public. Samples are often received from the head office of Bureau of Mines, Toronto, the property of private parties. In such cases, reports on samples are sent to the head office and charged up against the Bureau of Mines for collection.

(2) Issuing check analyses of iron ores mined and smelted in Ontario, on which it is proposed to claim the bounty provided by the Iron Mining Fund.

(3) Following up Mr. Wells' inquiry into Arsenic in Ontario,[1] some experimental investigations were undertaken, with a view to making a cheaper insecticide than Paris green, which should include all the physical qualities, toxic effects and general efficiency of that article, as well as comply with the Dominion law regarding the manufacture and sale of insecticides. Attempts were made to produce such an insecticide by replacing copper by iron in Paris green and eliminating the acetic acid, which has no particular value beyond helping to make a stable compound, and probably forming with copper a fungicide. Paris green was originally made as a pigment, and for this purpose the acetic acid is valuable by adding brilliancy to the color, but it is being replaced for this purpose by organic dyes.

[1] Arsenic in Ontario, by J. Walter Wells, 11th Rep. Bur. Mines, pp. 101-122.

The retail price of Paris green averages about 25 cents per pound in Canada, and it was thought that a more general use of the insecticide in fruit-growing, with a consequent improvement in the quality, would be a result if a cheaper and equally efficient insecticide could be made. Paris green is a chemical compound known as aceto-arsenite of copper, with the following theoretical composition; copper arsenite, 82 per cent. and copper acetate 18 per cent., which may be expressed thus :—

	per cent.
Arsenious Oxide (As O)	58.64
Copper oxide (C_2 O_3)	31.30
Acetic acid (C_2 H_4 O_2)	10.06
	100.00

Free white arsenic and arsenious acid are often present in the commercial compound.

Paris green has proved such an efficient insecticide for many pests affecting trees, garden plants and fruits, that it has become the standard fixed by common usage, so that any new compound replacing it must comply with the following conditions : It must have a green color resembling Paris green to satisfy prejudices ; it must be insoluble in water so that it may not be washed readily from leaves, etc. ; it must be effectively poisonous for all biting insects ; it must contain as little free arsenic as possible so as not to scald the leaves and fruits when applied ; it must carry at least 50 per cent. combined arsenious acid to comply with the law, and it must be cheaper than Paris green.

The following compounds were prepared, using white arsenic from the Deloro works and cheap commercial chemicals :—

(*a*) Copper Arsenite (Cu H As O_3); made by adding white arsenic to a blue ammoniacal solution of copper sulphate. A light green precipitate is formed insoluble in water and very poisonous. The dried precipitate carried 40 per cent. arsenious acid. It answers all the conditions excepting the legal minimum of combined arsenious acid.

(*b*) By digesting carbonate of copper (Cu CO_3) with water and white arsenic and evaporating the solution, a yellow-green salt was obtained partly soluble in water and carrying 54.50 per cent. arsenious acid. This compound complies with all the requirements except that it is partially soluble.

(*c*) Arsenite of iron ; made by mixing a solution of ferrous sulphate (copperas of commerce) with a solution or emulsion of white arsenic and adding a little ammonia. A white insoluble compound is formed, which when dried carries 43.8 per cent. combined arsenious acid, thus falling below the legal standard. No experiments were made to test its efficiency as an insecticide. This compound can be made very cheaply.

(*d*) Arsenite of lead ; made by adding a solution of lead acetate to an emulsion or solution of white arsenic slightly alkaline with ammonia or sodium hydroxide. A white insoluble compound is formed which does not carry the necessary amount of combined arsenious acid.

The few experiments were made in spare moments, but the results were sufficiently encouraging to warrant further experimental investigation on the part of interested parties, such as producers of white arsenic, chemical manufacturers, and agricultural chemists, who should also have the opportunity of carrying on actual tests in the garden to prove the efficiency of each new preparation.

Work done for private parties.

The following services have been rendered during the year to prospectors and others engaged in the mineral industry in Ontario :—

(1) Issuing laboratory reports, consisting of assays, analyses, qualitative examinations, identifications and reports as to probable commercial value. In no case does the report issued on a sample give any opinion as to the extent or commercial value of the deposit which may be the source of the sample, the office dealing only with the sample as received. Fees are collected on these reports according to the scale of fees approved by the Director of the Bureau of Mines. Each report issued as custom work is the property of the party ordering the test

and paying the fee. A copy of such a report cannot be issued to a different party without an order from the party ordering and paying for the original report. The pulp of each sample is retained by the office subject to the order of the party ordering the original report on the sample.

(2) Making check or control determinations in case of a dispute as to values contained in a sample. More trouble is caused by incorrect sampling than by incorrect analysis, as no two parties appear to take a similar sample on the same ore deposit, unless it is done according to the standard rules adopted by engineers. Considerable trouble is caused by the fire assay for gold ores carrying nuggety free gold, as the fire assay gives variable results on such samples. For example, a pulped sample carrying free gold may be divided and sent to two different assayers; both may do careful work and yet get variable results, thus causing a dispute as to the proper value. In such cases the amalgamation assay, combined with the fire assay, is the only safe method of getting accurate results.

When a pulped sample is ordered from the office by the sender of a check or control, the pulp is sent in a sealed parcel and the seal of the office must be broken only in the presence of the chemist selected to do the checking, in order to prevent any tampering with the sample in transit.

(3) Acting as an information agency, so far as possible, answering inquiries as to market prices, commercial uses and purchasers of ores.

(4) Issuing a monthly office bulletin, containing the monthly laboratory report, inquiries of general interest and notes on minerals coming into commercial use. The bulletin was sent, free of charge, to parties interested in mining in Ontario, but publication ceased in July last.

The following minerals, coming into more common commercial use, were dealt with in these bulletins:—(1) Bauxite, a hydrated form of alumina more or less intermixed with iron and silicious matter, and used as the ore of the metal aluminium, also for the manufacture of the various grades of alum; (2) Cassiterite, commonly known as tinstone, and found in small quantity in the pegmatite rocks in Eastern Ontario. This ore is always in demand, as no tin mine exists on the American continent.

Many letters have been received asking for further information as to the commercial uses of minerals, and 124 samples of economic minerals have been distributed to prospectors during the year, free of charge. This method of keeping the prospectors in touch with various changes in industrial uses of minerals appears to be appreciated.

Laboratory Determinations.

The following tabular list shows the laboratory determinations made during the year, each being checked off by a duplicate to avoid errors in issuing certificates:—

Assays.

Mineral.	For Bureau.	For public.	Total.
Gold (fire assay)	56	760	816
Gold (amalgamation)	13	12	25
Silver	52	467	519
Copper	22	104	126
Nickel	8	63	71
Platinum	3	30	33
Zinc	3	21	24
Lead	1	18	19
Manganese	3	13	16
Tin	2	6	8
Cobalt	2	19	21
Bismuth	..	1	1
Total	165	1,514	1,679

Analyses.

Determination.	For Bureau.	For public.	Total.
Silica	9	71	80
Sulphur	12	91	103
Phosphorus	16	21	37
Titanium	5	9	14
Ferrous oxide	5	10	15
Ferric oxide	7	31	38
Alumina	8	53	61
Lime	8	54	62
Magnesia	8	56	64
Moisture	96	58	154
Volatile combustible	47	5	52
Fixed carbon	48	5	53
Ash	48	5	53
Metallic iron	33	142	175
Chromic oxide	.....	1	1
Arsenic	2	24	26
Alkalies	2	27	29
Miscellaneous	192	275	467
Total	546	938	1,484

Total number of samples received for assay	1,164
Total assays	1,679
" analytical determinations	1,484
" identifications and qualitative examinations	349
Total laboratory determinations	3,512

A comparison with the preceding year shows an increase in the number of gold and silver samples, and also of iron ores.

Many limestones were also received for examination as to suitability for the manufacture of Portland cement.

Laboratory Equipment and Methods.

The efficiency of the laboratory has been increased by additions to the equipment, including a 3-h.p. gas engine, jaw crusher, gyratory muller, automatic sampler, platinum ware, electric dynamo and a large importation of German apparatus and chemicals.

It is now equipped for the following determinations :—

Gold and Silver.—The fire assay is used for all classes of ores, except when bottle amalgamation with mercury is ordered to test the free milling values of gold ores. Two improvements have been introduced, saving the assayer considerable trouble. Sodium peroxide is used to oxidize sulphide and arsenical ores, replacing sodium nitrate which has many objectionable qualities for this purpose, and also doing away with the slow and troublesome method of roasting sulphides in a muffle furnace. Sodium peroxide, together with iron nails, will eliminate the sulphur from a pure pyrite ore carrying 50 per cent. sulphur, and the loss of gold and silver is no greater than with nitre or roasting. No argols or other reducing agent is required. Cupels made of Portland cement have been found by practice to be as satisfactory as bone ash for the elimination of zinc, lead, copper, arsenic, etc., from gold and silver. The cement cupels have the advantage of hardness and durability and cost practically nothing, as cement is $2.00 per barrel. The gold and silver button balance is sensitive to $\frac{1}{100}$ milligrame, so that by using 1 assay ton, which is employed as the ordinary charge of ore rather than $\frac{1}{2}$ A. T. adopted by western assayers, gold values can be ascertained to 20 cents per ton of ore.

Copper.—Both the electrolytic and the titration methods are used.

Lead.—Either the fire assay for rich ores, or the molybdate titration for lean ores is employed.

Nickel.—The electrolytic process is adopted as being the most accurate, even though somewhats low.

Platinum.—The fire assay is found to be satisfactory.

Zinc.—The titration method, using potassium ferro-cyanide, is adopted.

Iron ores, cokes, coal, limestones, marl, clay, etc., are analysed by the latest known standard methods.

Samples are pulped to 100-mesh, and those requiring an impalpable powder are further ground in an agate or diamond mortar.

Certificates are made out on samples, analysed at ordinary temperature, unless otherwise stated. Ores carrying moisture sufficient to prevent grinding, are dried at 110°, and reported on in both states.

Laboratory fees amounting to $1,712.53 were collected during the year and remitted to head office. While the fees are nominal, reports cannot be issued till they are paid.

No charges are made on identification and qualitative analysis of samples brough personally to the office.

Circulars of rates, shipping bags and mailing envelopes, are sent to parties wishing assays.

Two laboratory assistants are employed, whom it is difficult to keep, as they usually obtain more lucrative positions after a few months' practice. Four different assistants were employed during the year; G. C. Reid, who joined a cavalry force of Canadian volunteers to South Africa; L. L. Bolton, transferred as geologist to a Crown Lands' survey in the James Bay district; F. J. Thorpe, who accepted a position on the laboratory staff at the Steel Works, Sydney, C. B.; and A. T. Fife, science master at the Peterborough Collegiate Institute. The last assistant showed commendable enthusiasm, which should be of benefit to the students in his charge.

The Assay Office was in charge of Mr. J. Walter Wells from its establishment until 1st October 1902, when he resigned in order to pursue some special lines of study connected with the mining industry. Mr. Wells was succeeded by Mr. Alfred G. Burrows, M.A., B.Sc., formerly laboratory assistant and later demonstrator in Applied Chemistry at the School of Mining, Kingston.

MINES OF NORTHWESTERN ONTARIO.

BY WILLET G. MILLER.

This report deals primarily with the working mines and prospects in the region which occupies that part of the Province lying to the west and northwest of the town of Sudbury. At the end of the report notes are added on various specimens of rocks collected during the tour of inspection.

The nickel mines, all of which are found within a few miles of Sudbury, are not included in the following description. This town lies near the western boundary of the district of Nipissing. The present report therefore covers the mines in the districts, beginning with the most eastern, of Algoma, Thunder Bay and Rainy River. As few people realize the size of these districts it may be stated that the three together cover a territory which is approximately 600 miles in length, with an average breadth of about 250 miles. An idea of the large size of the region may also be gained from the statement that the length of that part of the main line of the Canadian Pacific Railway between Sudbury on the east and Rat Portage on the west is 848 miles.

Railway Building in Mining Districts.

During the last two or three years the railway facilities in parts of the region have been greatly improved. We now have the Canadian Northern railway running through the district, south of the Canadian Pacific, from Port Arthur westward to Fort Frances. This has rendered much more accessible several tracts of mineral lands, among which are the Atikokan and Mattawin iron ranges.

Farther east in the region there are now the branch of the Algoma Central, which connects Michipicoton Harbor with the iron deposits, and the main line of that railway, the grading of which has been finished from the town of Sault Ste Marie to its junction with the branch just mentioned. This railway, which has been completed for some distance north of Sault Ste Marie, passes through a district in which a number of metalliferous deposits are being developed. These include four or five copper deposits and two or three iron properties, all of which are within forty miles of Sault Ste Marie.

Then there is another mineral railway now running from Bruce Mines, on Lake Huron, to the Rock Lake copper mine, some twelve or fourteen miles distant, called the Rock Lake and Algoma line.

The nickel range railway, a part of the Manitoulin and North Shore system, runs west from Sudbury through the district in which nickel deposits are being worked. Trial lines for the continuation of this railway have been run westward to the main line of the Algoma Central, and northeastward to the northern nickel range and the iron deposits of the township of Hutton, north of Sudbury. It is stated that the Canadian Pacific has also made preliminary surveys of a line which is to afford an outlet for the ore of these deposits.

The construction of the Government railway from North Bay station on the Canadian Pacific, to the head of lake Temiscaming, is being energetically prosecuted. It is expected that during the coming autumn or winter this line will be completed to lake Temagami.

In the vicinity of the latter lake the railway will pass over a part of the iron ranges which have as yet, on account of the lack of transportation facilities, had little development work done on them.

Other railway lines through mineral areas have been projected, especially in the more western part of the region, but their construction has not been begun.

Lessons Taught by Experience.

The industry is recovering rapidly from the injury it received during the boom, and apparently the lessons then learned have been taken to heart. Work is being done on a more conservative basis and development is being put in charge of more experienced men.

In a few cases some of the old mistakes are being repeated, such as erecting mills on properties on which sufficient development work has not been done, and, in one or two instances, putting in plants manifestly unsuited to the kind of work they are required to do. These mistakes are in most cases due to the directors rather than to the managers, the latter being forced by the enthusiasm of the former to erect plants against their own judgment.

A striking feature in connection with the industry is that most of the capital being introduced comes from the United States. The purely Canadian companies number not more than three or four, and there are about the same number whose headquarters are in Great Britain.

It is probably as well that the work is being so largely done by Americans, as there are many capitalists in the United States who have achieved success in the industry and who know how it should be conducted. The ordinary successful business man who has had no experience in mining often does the industry as much harm as good. He knows nothing of its technology, and is as apt as not to make a poor choice of his advisers. Many of the so-called failures which have been made in mining in Canada in recent years could have been avoided had the directors of the companies possessed even a slight knowledge of the industry. Frequently such directors have chosen incompetent advisers; at other times they have been given good advice and refused to accept it. The writer can name more than one property which was condemned by experts who were asked to report on it before much outlay of capital had been made. But the directors of the companies declined to take the advice of trustworthy men. They accepted instead the opinions of self-styled experts, whose views agreed with what the directors themselves wished to believe. That weakness of human nature expressed in the old saying, "the wish is father to the thought" has been the means of injuring many a promising mining field. Loss of capital in mining, through whatever causes it may be brought about, is unfortunately by the public always checked up against the industry. Mining men justly complain that this is grossly unfair. Let capitalists use the same common sense in their mining enterprises that they use in ordinary business transactions, and they will find that the risk is no greater, if indeed it is as great, in this industry as in ordinary commercial pursuits.

General Remarks.

In the following pages the mineral industries in operation in the region will be referred to in the following order: Gold and Silver, Copper, Iron. Since most of the larger mines were somewhat fully described in the last report it will not here be necessary to repeat the description. Reference will simply be made to recent changes and improvements.

The writer has received inquiries during the past season from a number of persons, mostly stock-holders, concerning his opinion of various mines and prospects. He therefore takes this opportunity of stating that it is not a part of his work to thoroughly sample all the deposits visited by him; hence he is not in a position, in all cases, to express an opinion as to their values. The question as to the assay value of the ore is a matter which concerns the owners only, and the Bureau of Mines, even if in possession of the information, would not be free to make it public without the full permission of those controlling the properties.

In addition to attracting capital from the United States, the Province's western mining districts are supplying a field of labor for an increasing number of experienced technical men. Several superintendents and mining captains of experience in great American mines have come into the country during the last year or two, and last season the writer met graduates of half a dozen or more American technical schools and universities who are employed in various capacities. He was told by some of these men that they had been advised by their instructors, on graduating from college, to go north, as Canada was the coming mining country.

In addition to this younger generation of technical men, the region received visits from a number of well-known authorities on various branches of mining. The iron ore fields proved especially attractive to some of the leading American experts.

Probably the greatest increase in activity during the past year, in the part of the Province under review, has been in connection with iron. Most of the iron ranges which have been brought to light during the last few years were visited by experts and prospected to a greater or less extent. Three or four prospects in the Michipicoton Mining Division were tested with very encouraging results, and diamond drills have been at work at Steep Rock lake, on the Canadian Northern railway, and along the line of the Port Arthur, Duluth and Western. The iron ore deposits in the Township of Hutton, north of Sudbury, have also been tested by the diamond drill.

Compared with a few years ago the activity in the development of copper properties is noticeable, especially in the district surrounding Sault Ste. Marie to the north and east.

Interest in gold mining, notably in the Manitou, Eagle Lake, and Lake of the Woods areas, has been renewed, and since my tour of inspection ended in December, work has been begun on a number of gold properties which are not mentioned in this report.

The regulations of the Mines Act, as regards the safety of employees, are on the whole well observed. Managers and superintendents show a strong desire to live up to the spirit of the Act.

For the better protection of employees two points should be mentioned. One of these is concerning the tendency to erect buildings over the mouths of shafts. In some cases these buildings are large and contain boiler and engine rooms, hoisting machinery, blacksmith and carpenter shops. This gives rise to great danger from fire which might cause the suffocation of men working underground, particularly if, as is the case with most properties, the only means of escape from the workings is by way of a single shaft. Loss of life has occurred in the Province through suffocation in the workings caused by the burning of buildings at the shaft's mouth. It might also be mentioned that in the case of one mine visited by the writer during the past summer, where the buildings—boiler house, blacksmith shop and others—were grouped at the mouth of the only shaft available for escape, a fire has since taken place and the buildings have been burned to the ground. Fortunately, however, no lives were lost in this instance. The situation of this group of buildings was criticised, and a note was made of the criticism in the Inspector's book, at the time the inspection was made.

The practice now followed in many of the leading mining countries is either to have little else than a framework at the mouth of the shaft, or to have the building, if any, constructed largely of metal. The boiler house, blacksmith shop and other buildings do not need to be erected at the shaft's mouth.

My attention was also drawn by four or five mine superintendents to the character of some of the dynamite supplied them. In some cases it is claimed that this material does not possess the strength, whether 40 or 60 per cent. or higher, which the makers represent it to have. Efficiency is thus lost.

The most serious criticism made of some of the dynamite, however, is that portions of charges, or of certain cartridges, fail to explode, which is apparently due to imperfections in manufacture

or to the age of the material supplied. This gives rise to great danger. One superintendent told me, for instance, that a certain charge was fired in his mine. When the loose rock was hoisted to the surface it was found that one large block contained portions of three different sticks of dynamite. If one of these fragments had been struck by a pick while the rock was being got ready for hoisting an explosion would in all probability have taken place, resulting in serious or fatal injuries to one or more men.

It would seem that this question of the quality of dynamite is one that should engage the attention of the Inland Revenue Department. Samples might be collected at various mines and subjected to chemical and other tests, just as are samples of groceries, fertilizers and other materials.

The dynamite should be examined both with regard to its strength and the perfection of its manufacture. Each box should be distinctly marked at the factory with the date of its manufacture, since explosives are known to deteriorate with age and tend to become more dangerous to handle.

Gold and Silver Mines.

Work has been done on about thirty gold and silver properties in the northwestern part of the Province during the past year. The two metals are classed together on account of the fact that a small amount, sometimes merely a trace, of silver is always found in alloy with gold. Of the number mentioned two or three are purely silver properties. Only one of them was, however, a shipper of silver. Work has been begun on a half dozen or more gold properties since the writer's last visit to the field.

SCADDING TOWNSHIP GOLD MINE.

This property, which is owned by Messrs. F. Cochrane and T. Clemow of Sudbury, consists of the southeast quarter of the north half of lot 7, and the south half of the north half of lot 6 in the sixth concession of the township of Scadding, which bounds lake Wahnapitae on the southeast. This is the only property described in the present report which is situated in the district of Nipissing.

At the time of my visit on 10th July, 1902, work was confined to the main shaft which was down to a depth of 186 feet. The first level in this shaft is at a depth of 40 feet from the surface, the east drift being 18 feet in length and the west 22 feet. The second level is at a depth of 160 feet, drift west 45 feet and east 90 feet. Work was continued into the autumn and before shutting down for the winter the length of the lower level had been materially increased.

The vein, where followed by the west drift on the second level, was well defined and separated freely from the walls, a considerable amount of flucan, selvage or decomposed rock matter, lying between the quartz of the vein and the walls. The east drift on this level also followed a well defined vein for about 40 feet when the vein was found to end sharply, having apparently been cut through by a dike of diabase which is now much altered or changed into chlorite. The direction of throw of the vein, whether to the north or to the south, at its contact with the dike had not been determined. In order to obtain light on this point, I advised a study of the surrounding rock exposures. If faults are found in some of the dikes and veins exposed at the surface it can be pretty definitely determined, from the direction of the throw in these, in which direction to look for the continuation of the vein in the level. A fair idea should also be obtained in this way as to the amount of the throw in the vein.

The rock through which the vein cuts is a metamorphic conglomerate, consisting of a chloritic base through which are set, sparingly, pebbles of pink or light colored granite.

The strike of the vein is approximately 70 degrees west of north and the dip is about 80 degrees to the northward. In the second level the vein averages probably six feet or more in width.

Another shaft has a depth of 40 feet. Work has been discontinued on it on account, it is said, of bad air. This shaft lies a short distance south of the one just described and it is claimed to be on another vein which forms a junction with the main vein to the westward.

The swamp lies immediately east of the workings and makes it impossible to trace the vein farther in that direction. On the west of the shaft a hill runs in a north and south direction. A shallow pit has been sunk on the vein on this hill. Farther westward the vein is covered by soil and brushwood.

The ore is quartz which carries gold, together with copper pyrites. Mill tests have been made and it is said the gold values can be extracted by the free milling process.

A small lake lies about 500 yards to the north of the workings. It has a length of about 200 yards, with a breadth of 100 yards. This lake is on lot 7 in the sixth concession and is drained by a creek which runs through the swamp northeast of the mine. It will thus be seen that a water supply is available for any mining operations that may be undertaken.

The mine is reached from lake Wahnapitae by a road one and a half miles in length. From this point across the lake to the landing place or end of the road running to Wahnapitae station the distance is 8 miles. The length of the latter road is 13 miles. It is said that a winter road can be built from the mine to the railway which will necessitate travelling only 13 miles.

The buildings consist of dining and sleeping camps, stable and boiler house. The steam for a hoist and a 2½ in. duplex pump is obtained from a 12-h.p. boiler. Ten men are employed.

EMILY GOLD MINE.

This property is owned by the Algoma Commercial Company and lies about seven miles southwest of Missanabie, a station on the main line of the Canadian Pacific Railway 232 miles northwest of Sudbury. The work being done at the time of my visit, 24th October, 1902, was in connection with a shaft, 7x9 in size, which had reached a depth of 20 feet in felsite. Another shaft, 6x8, and of the same depth as the one mentioned, had previously been sunk but was abandoned on account of the heavy flow of water encountered. Some diamond drilling had also been done.

The workings lie about a quarter mile north of the shore of an arm of the lake and the property is reached by canoe from the railway station. The greater part of the surface surrounding the openings is drift covered. As the weather was bad at the time of my hurried visit I did not make a careful examination of the surrounding rocks, but they seemed to be of two kinds, felsite, or quartz porphyry, and green schist. Similar rocks are seen along the north shore of the canoe route from the railway, the former being intrusive in the latter. The force consisted of 6 men, of whom 5 were miners, under the superintendence of Mr. E. M. Dodds. As Mr. Dodds was absent I was unable to learn the number of the claim and the extent of the company's holdings at this point.

The ore where penetrated by the first shaft is quartz carrying iron pyrites and free gold. The second shaft, not being carried down on the vein, was not in ore.

The buildings consist of a combined cook house and sleeping camp at the shore of the lake, and a blacksmith shop in the vicinity of the shaft. The powder house is about a quarter mile from the workings.

I was told that work was about to be begun on another property, known as the Goodrow, which lies about 15 miles west of the Emily. Mr. Dodds was said to be superintending the erection of camps on this property.

MICHIPICOTON GOLD MINES.

The Grace mine became a producer in the last quarter of the year. The development of this property has caused a revival of interest in gold mining in the district and work was being done on several properties. As my visit was made late in November, when the surface was covered with snow, I did not have an opportunity of examining a number of the more important claims.

Grace Mine.

An account of the geology and other characteristics of this property will be found in the last and earlier reports of the Bureau of Mines.

Mr. P. N. Nissen, who was superintendent at the time of my visit but who has since resigned, has been in charge of the development since the beginning of operations. The recently constructed ten-stamp mill has been designed and erected by Mr. Nissen without the services of a millwright and is a credit to his skill.

The nomenclature adopted for the drifts at this mine is intended to simplify description, but as it is unusual it will be necessary to explain it before proceeding with the account of the different levels. The south drift of the first level is known as A, the north drift as B. The south drift of the second level is called C and the north D, while the south drift of the third level is named E and the north F.

No. 1, or the main shaft, has a depth of 304 feet, an increase of 96 feet over the figures given in the last report. A and B drifts are unchanged, having a length of 68 and 188 feet respectively. C drift, 204 feet, shows an increase of 88 feet ; D, 115 feet, unchanged ; E, 31 feet, and F, 50 feet, represent new work. The three levels are at a distance of 100 feet from one another. Stoping in B measures 100 feet in length with an average height of 20 feet from the floor. There is an upraise in A of 16 feet. A winze connects B and D at a distance in from the shaft of 57 feet. A winze has been sunk in C to a depth of 5 feet and is distant 160 feet from the shaft.

The shaft house has been enlarged, and the ore is sorted in it by hand before being sent to the mill. Hoisting is now done by means of a 2500 lb. skip, track 3 foot gauge with back runners to the bottom. In addition to the mill an assay office and three houses have been erected during the past year. A new dynamite magazine has also been built. It is situated 400 feet away from the shaft house and behind a rocky bluff. The thawing house has been removed to a point 100 feet distant from the hoist house.

The machinery for the mill was supplied by the Allis-Chalmers Company. Ten 950-lb stamps are in use and the power is sufficient for an additional 10 The mill is driven by a 60-h. p. Corliss engine, steam being supplied by two 60-h. p. Mumford boilers. A Blake crusher, 7x10 inches, feeds bins of 60 tons capacity. A friction hoist, drum 30 in. diameter, 24 in. face, run by belt, is used for hauling ore up a tramway from the shaft 400 ft north of the mill. Three 6-foot Frue vanners are in use in the mill, it being claimed that they do better work on this ore which requires to be crushed very fine than would Wilfley or other tables. Lamb's automatic tailings sampler is placed under the floor of the mill.

There are two water tanks, capacity 5000 gallons, supplied by Northey pump, 4-in. suction and 3-in. discharge, with water from the lake.

The ore bins are designed for large capacity, and are so arranged that the ore may all be run out without shovelling.

The engine room, 30x24 feet, provides space for an air-compressor of sufficient size when it is considered advisable to instal it.

A 4-in. pipe leads from the mill to the mine for conveying steam to hoist and compressor. This pipe line will be used for the conveyance of air when a new compressor is installed.

Above the engine room is a suitable room for machine shop and carpenter shop. The door of the engine room opens directly on to the battery floor.

Among the features worthy of mention in connection with the mill are the absence of any launders above the battery floor, there being absolutely clear space around the plates. The lighting of the mill is particularly good and the building is heated by exhaust steam from the engine. All the sills of the building, as well as the batteries, are set on concrete walls which reach to bed rock, thus making the foundations free from the destructive action of frost and also preventing vibration. The mill site is well chosen and very little blasting was required to be done for the foundations. The inside of the building is white-washed, which produces a light effect. The vanners are fitted with a device of the superintendent's invention which prevents splashing of the pulp on the distributors. Sheet-iron funnels are fastened to the top of the distributing box into which the pipe carrying the pulp leads. There is also an improved device for holding the end lines of the mortar in place. It is very simple and consists of a lug cast on to the end line which passes through a hole in the end of the mortar. On this lug a groove is cut over which a steel spring fork passes. The fork is sprung into position and is held by a small tit passing into the hole in the mortar.

An automatic sampler, also a contrivance of Mr Nissen's, was to be placed at the end of the battery plates for taking samples of battery tailings as they pass to the amalgam trap, before reaching the vanners. It consists of an inch pipe, which has a length equal to the total width of the plate. In this pipe a slot is planed through, 20-mesh wide. On the pipe 4 sheet-iron wings will be fastened. Pulp dropping on this causes the pipe to turn so that each time the slot comes up a certain amount of tailings passes through the pipe from which it runs out at the lower end, the pipe being in a slightly inclined position. Arrangement is made so that when the pulp enters the pipe it cannot escape except through its end. The speed of the sampler is entirely automatic, depending on the flow of the pulp. It can be lifted in and out of position at will.

The mill which had been running only one month appeared to be doing excellent work.

The concentrates, which are being stored for the present, consist of pyrite, copper pyrites and mispickel. They are said to average about 3 per cent. of the ore treated and assay $43 to $45 per ton. The gold shows a fineness of 16.70 to 17.00.

Manxman Mine.

No mining was being done on this property at the time of my visit, but work was being energetically pushed in the completion of the recently erected mill. The plant is to consist of 20 stamps, with provision for 10 more. From the plates the pulp is to go to electro-plated riffles, a new device, it is said, which is manufactured in Denver and is in use in Colorado. From the riffles the pulp passes to sizers, Allis-Chalmers pattern, and thence to Frue vanners. The latter are to be of two kinds, smooth and corrugated, A 95-h. p. Corliss engine and three boilers, yet to be selected, are to be installed. The mill is situated on the edge of a small body of water known as Mabel lake.

A tramway runs from the top of the mill to the quarry which lies about 1300 feet northeast of the mill. The rock in the quarry is claimed to be all gold-bearing, but there is a narrow and richer vein-like streak running through it. The rock mass, in which the quarry is located, as exposed strikes north and south and has a width of at least 300 feet. If this all contains pay values as claimed, the question then arises as to what sized plant will be required to make a profit. An ore which would not pay with a 20 or 30 stamp mill might be worked at a profit with a much larger plant. The ore body was not sampled by the writer as the values it carries is a matter which concerns only the owners of the property.

The superintendent stated that no mining would be done during the winter, as sufficient ore was blasted out in the quarry to keep the mill, when completed, running till spring.

The shafts and other workings mentioned in the last report have been abandoned for the present. The main shaft is said to have a depth of 126 feet and to be timbered down to a depth of 120 feet, with manway and ladders separate from the hoisting compartment. At the 100-foot level a drift runs north 18 feet. The south drift was stated to be 23 feet in length with cross-cut south 10 feet.

The quarry referred to is on location 641. The workings are about 120 feet in length with drift 30 feet in the bottom across the pay streak.

A dynamite house, 10x10 feet, has been built. It lies about 600 feet south of the quarry, with rise of ground between. No explosives are kept in it at present. The dynamite is stored at the main shaft half a mile south of the works.

The officers of the company are: president, M. L. Parker of Fort Yates, N. D.; secretary, J. J. Nierling of Jamestown, N. D.; manager, Angus Gibson of Duluth. Thirty men are employed under superintendent J. W. Douglas.

Other Michipicoton Gold Claims.

A plant was being put on the Mariposa. It is to consist of a 5-drill air compressor, Lidgerwood double-acting hoist and 60 h. p. locomotive boiler. Dining and sleeping camps and an engine house have been erected. A recent fall of snow, and the presence of water in them, prevented my making an examination of the pits and surface workings on this property. Some work was done here two or more years ago and some stripping more recently. In the tenth report of the Bureau, p. 139, it is stated that a shaft, 9x11 feet, had been sunk to a depth of 33 feet and two pits each eleven feet deep have been put down. Three miners were at work at the time of my visit squaring up the mouth of the shaft, preparatory to putting in a collar, and it is the intention to vigorously prosecute development as soon as the machinery is in place. Messrs. Brown and Lennox have charge of the work, but were not present at the time I visited the property.

I was told that a contract had recently been let to sink a shaft 100 feet deep on the Sunrise claim.

The shaft on the Cora was being unwatered for the purpose of sampling the ore body.

Mr. P. N. Nissen furnished me with information concerning claims 1102, 1103, 1104 and 1105. They are controlled by Messrs. Francis and Dixon and 1105 is said to contain a promising vein. The vein is stated to have a width in places of 10 feet and strikes northwest and southeast. It is found on both sides of the Fire Sand river which runs through 1105, on which there is a falls. The dip of the vein is westward and its width on the north side of the river is 5 feet. A water power on the Michipicoton river is about one mile distant from the outcrops. The Anjigomi road passes within a mile of the vein. The ore body is said to lie near the contact of diorite and greenstone. The quartz is mineralized, carrying pyrite and chalcopyrite. Work has recently been done on some of these claims.

OPHIR GOLD MINE.

This property, which attracted considerable attention a few years ago, was started up again, after a long shut down, on 1st December, under the direction of Messrs. E. L. Lawyer & Co., Mr. J. P. McNolty being superintendent. At the time of my visit on December 1st ten men were employed, of whom only two were miners.

The vertical shaft is 97 feet deep with drift to the east, from the bottom of the shaft, 119 feet, and north cross-cut of 40 feet. It is proposed to put a new shaft down through an old

Helen Mine: The last of Hematite Hill.

Helen iron mine.

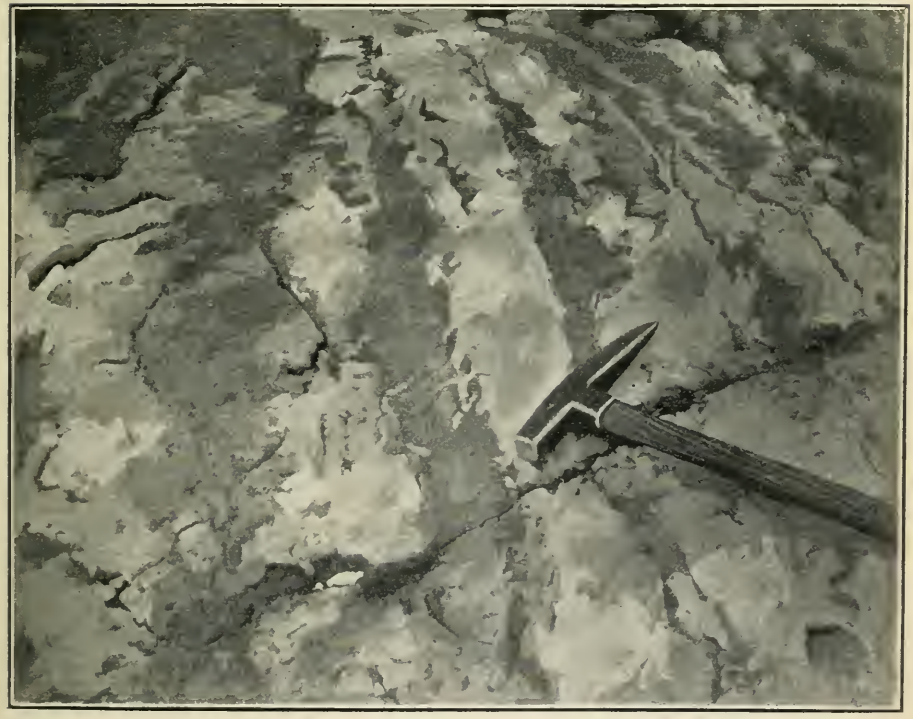
Helen iron mine.

Helen iron mine; Dining hall, sleeping camps and other buildings.

Cape Gargantua, Lake Superior.

Stamp mill, Grace gold mine, Michipicoton

Whitefish rapids Lake of the Woods.



Ore from St. Anthony Reef : Quartz stringers in protogine.

stope and No. 1 winze. The vertical shaft will serve for ventilation. Timber is on the ground for new shaft and stopes.

Drilling was formerly done by hand. A 4-drill belt-driven air compressor and a 40-h. p. boiler have now been added to the equipment, together with a 20-h.p. hoisting engine and three air drills.

The stamp mill is said to be in good repair.

The deposit is on lot 12 in the third concession of the township of Galbraith, and is distant 16 miles from Bruce Mines Station. It is described in the third and fourth reports of the Bureau of Mines.

EMPRESS GOLD MINE.

Descriptions of this mine will be found in former reports of the Bureau. In September 1c and some adjoining claims were examined for the present owners by Mr. Charles Brent, M. E., of Rat Portage. I gathered from a conversation I had with Mr. Brent that his opinion is that the property can be worked to advantage if it is handled as a large low-grade proposition. A much larger plant would need to be installed and the mining operations would have to be conducted under the best direction. If this were done Mr. Brent seemed to believe that a profit could be made.

The properties now being worked in the district west of Port Arthur can be classified geographically as follows: (1) Those tributary to the Canadian Northern railway; (2) the Sturgeon lake claims which lie north of the Canadian Pacific railway; (3) the Manitou and Eagle lake properties south of this railway; and (4) the mines and prospects in the vicinity of Lake of the Woods.

GOLD PROPERTIES ON THE CANADIAN NORTHERN.

During the past year two gold mines, the A. L. 282, and the Elizabeth, have been under development along this railway. Work has been done on one or two others but was suspended at the time of my visit. The ore of the Tip Top mine is said to carry important gold values but this mine will be described under the heading of copper mines. Operations are expected to begin on the Sapawe lake property which is mentioned in former reports.

A. L. 282 Mine.

This mine is being operated by the same company as at the date of the last report. Mr. T. R. Jones is now superintendent, Mr. Geo. Copeland engineer and foreman, and Mr. C. J. McLean is mine captain A force of 25 men was employed during the summer, but in the autumn the number was 16, of whom 12 were miners.

The main shaft, to which work has been confined during the year, is 212 feet in depth. First level, depth 113 feet; northeast drift 210 feet, an increase of 33 feet: southwest drift, 105 feet, unchanged. The second level runs from near the bottom of the shaft, northeast drift 244 feet and southwest 179 feet, these drifts representing new work. Preparations were being made to continue the sinking of the shaft and it is expected that a greater width of ore will be passed through than that penetrated by the second level, as the sump in the southwest drift of this level has been sunk in massive quartz.

The shaft is partitioned off to the second level. The powder house has been put in condition as ordered. A large boiler has been set up and a drying room has been made out of the old boiler room.

A trail is being cut into the mine, starting at a point on the railway track about three miles west of Kawin station.

The rock surrounding the mine is a dark-colored granite which is cut through by a lighter variety. This younger granite tends to possess a pegmatitic structure, and the dikes composed of it frequently show faulting. Date of inspection 1st November.

Elizabeth Mine.

As a pretty full account of the ore bodies and other characteristics of this property is given in the last report, it will only be necessary to mention changes which have since taken place.

Mr. W. H. Johns, at one time of the Deloro mine, has recently been appointed mine captain.

At the time of my visit, 4th November, no mining was being done, but the water was being kept pumped out of the workings. All the employees were at work on the erection of a 15-stamp mill. The plant, which has seen little service, was purchased from the owners of the Decca mine, on which property it was erected a couple of years ago. The site selected lies a short distance from the shaft.

Outside of the work in the main shaft the development done since the date of the last inspection consists of 20 feet of drifting on the north end of location F M 171, together with some surface work on a recently discovered ore body which lies on the roadway between the main shaft and the mill site.

The depth of the main shaft is unchanged; first level, north drift, unchanged; second level, north drift, 230 feet with cross cut south 104 feet. A winze in the second level, which is 185 feet north of the shaft, has a depth of 70 feet. The north drift of the third level is 138 feet, with winze, 115 feet north of the shaft, 35½ feet deep. The south drift of this level is 112 feet with a crosscut east about 20 feet.

A new dynamite house has been built and other changes made according to instructions given at the time of the last inspection.

STURGEON LAKE REGION.

This gold mining district is reached in summer by a canoe route northward from Osaquan, a siding on the Canadian Pacific railway, which lies about five miles west of Ignace station. Sketches of the geology of the district are given in the last Report of the Bureau of Mines and in Summary Reports for 1899, pages 118 to 120, and for 1901, pages 90 to 92 of the Geological Survey, Ottawa. As the route is described in these reports it is not necessary to give a detailed account of it in this place. From Osaquan to the end of the portage into Sturgeon lake the distance by canoe is about 50 miles, with easy portages. There is a small steamboat on the lake, which is the property of the Jack Lake Gold Mining company. This boat does a general freight and passenger business, and, arriving at the lower end of the lake, one has the option of canoeing up to the gold properties or of travelling on the steamer.

At the time of my visit to the lake, July, 1902, work was in progress on four properties, and more or less development had been done on others during the year.

My thanks are especially due to Mr. J. S. Steele and the company represented by him for the facilities with which he so kindly furnished me for visiting various parts of the lake.

St. Anthony Reef.

This mine is the property of the Jack Lake Gold Mining company, formerly operators in the Seine river district. The officers of the company are: Arthur Hill of Saginaw, Mich., president, and G. W. Weadock, secretary-treasurer. The mine staff consists of J. S. Steele, manager, K. T. Barnard, assayer, and R. Andrew, mine captain.

At the time of my visit 23 men were employed, of whom 14 were miners. Drilling was being done by hand, but four steam drills are on the property. A steam hoist was in use at No. 3 shaft, and at No. 2 a horse was used for hoisting. There are also a No. 5 Cameron sinking pump and two duplex pumps. The workings, which are near the shore of Couture lake

are about one-third mile south-east of the camp, which is on a bay of Sturgeon lake. The buildings at the camp consist of manager's office and assay office, dining house, storehouse and stable. The dynamite house, 16 by 20 feet, lies at a distance of nearly one-half mile across the bay from the camp, which is on location B G 154.

The holdings of the company include B G 151, 152, 153, 154, 168 and H W 699. The workings are on either side of the boundary between B G 151 and 152.

The surface cuts, pits and shafts extend along the surface for a distance of 1,140 feet. The disturbed zone, or so called reef, rises to a height of 40 feet above Couture lake.

The workings are near the contact of granite, protogine, and green or grey schists and schistose quartz porphyry. It is difficult to say what the character of the green schists was originally, but they were probably traps and related materials. The schists are older than the quartz porphyry which protrudes through them at different points. This relationship between these rocks is the same as that which has been described in former reports as occurring in various localities in the southern part of the Rainy River district and elsewhere in this region.

After the eruption of the quartz porphyry a disturbance took place which subjected this rock and the accompanying green schist to great pressure and caused them to take on a schistose or laminated structure. At or about this time openings or fissures were made through these rocks which were invaded by molten material. On cooling and solidification this material gave rise to granite. As the granite cooled contraction took place, with the result that a line of fracture or disturbance was formed which does not follow the contact, as is usually the case, but crosses it, its south end, in the vicinity of the ore bodies, being in the green schist and its north end in the shattered granite. No doubt had the contact between the granite and the schist followed a straight line, the line of fracture would have paralleled it more closely. The contact at this point is quite irregular. There has, however, been some disturbance along the line of contact, as masses of quartz are found along it, stretching northeastward from No. 2 shaft.

For structural purposes, so far as their relation to the granite is concerned, the green schist and quartz porphyry may be considered to be identical, as the granite bears the same relation to the one that it does to the other. This is worthy of attention as the quartz porphyry and the granite possess almost exactly the same color, and the former I found had been mistaken for the latter. When attention is once directed to the structure of the two rocks the resemblance disappears. The quartz porphyry is more perfectly laminated and its quartz grains which are set in a rather fine-grained ground-mass, are more prominent than those in the granite. In chemical composition the two rocks are similar. Their structure depends on the conditions of cooling of the molten material from which they were formed.

The granite shows evidence of disturbance over a width of 200 feet in a direction at right angles to the strike of the rocks. In places it is much fissured and shattered, the openings thus made being filled with quartz which frequently surrounds fragments of the granite. This mixture of quartz and altered granite or quartz and schist represents the ore, all of which is said to be gold-bearing. With the exception of the difference in character of the fragments of rock mixed with the quartz the ore occurring in the granite and in the green schist shows a great similarity. The associated minerals are pyrite, zinc blende, galena and occasionally free gold. There is also at times some calcite with the quartz. The writer did not attempt to sample the deposit, but it would appear that there is a great width of ore deposited at the surface which seems not to differ very much in character from point to point.

The main workings follow a line which runs approximately ten degrees east of north. The most southern is a pit, No. 6, 12 feet deep, near the shore of a small bay of Couture lake. From this pit to No. 3 shaft the distance is about 50 yards. This shaft and the pit both lie in

the green schist to the east of the line of contact. From No. 3 to the boiler and hoist house the distance is 15 yards, and from the latter to the pit from which water is being pumped is 25 yards. From this pit, which lies a little east of the line of contact, to the pit on the contact the distance is 35 yards. It is to be noted that the ore body at the latter pit can be seen to dip strongly to the east. Shaft No. 2 lies 30 yards to the north of it, and a shallow opening lies 30 yards north of the shaft. 30 yards farther north is the large open cut which runs into the hill side.

Shaft No. 3 is 7 x 13 ft. in cross section and has a depth of 100 feet. A crosscut was being driven east at the time of my visit, and it had attained a length of 16 feet. There was also a crosscut of 6 feet to the west. The depth ot No. 2 shaft is 100 feet. From the bottom of this shaft a drift, then 17 feet in length, was being driven east. The open cut, known as No. 1, runs westward into the hillside a distance of 71 feet and has a depth of 25 feet at the back end. The pit. No. 4, at the contact, is 15 feet in depth. Shafts Nos. 2 and 3 are not timbered but material for this purpose was on the ground.

English River Gold Mining Company.

The property being worked by this company, formerly the Sturgeon Lake Mining Company. is commonly known as the Dawson mine.

The officers of the company are: President, J. Ross, of Parry Sound; treasurer, H. J. Taylor, of St. Catharines; secretary, J. E. Varley, of St. Catharines. At the time of my visit C. E. Eve was in charge of the development work. The holdings include locations BG 155 to 159 inclusive, about 200 acres.

The workings consist of a shaft 64 feet deep, and an open cut, near the shaft, which has a length of 70 feet and an average depth of about 10 feet, following the vein. Several pits have been put down and stripping has been done on other parts of the locations. At the time of my visit work was confined to the open cut and shaft. In the latter, which is timbered down to a depth of 24 feet, a cross-cut was being driven east from a depth of 60 feet. Hoisting was being done at the shaft by a whim. The employees numbered 14.

There are twelve buildings on the property, including stamp mill, assay office, blacksmith shop and houses for staff and men. The dynamite house is situated at a distance of one-half mile from the camp.

The mill consists of a log building equipped with machinery, supplied by the Jenckes Machine company, consisting of 10 stamps, 40 h.p. boiler, Blake crusher and other accessories of such plants.

At the point where the most work has been done the strike of the vein is approximately parallel with dikes of granite which cut through the green schist of the neighbourhood. The vein lies in the schist and dips to the eastward or away from the lake at an angle of about 65°.

It will be seen that the character of the ore body here is considerably different from that at the St. Anthony Reef. It will also be evident from the amount of development done that the mill has been erected prematurely. The ore is high-grade but to prove that there is sufficient of it to supply a mill will require the expenditure of considerable more capital.

Some rich specimens of gold in quartz are found in the shaft and open cut Associated minerals are pyrite, galena, blende, and a little copper in the native state. These minerals would be obtained as concentrates in milling operations, and if in paying quantities would have to be sent to some smelter to be treated.

On a claim lying immediately east of the Dawson property, with which it is connected by a trail, a mass of quartz, somewhat remarkable on account of its richness, was found a couple of years ago. The claim is commonly known as the White Prospect, but at the time of my visit the title was in dispute. The mass of quartz referred to consisted originally, it is said, of a large angular piece of vein matter, weighing 15 or 20 tons, which lay on the surface of the swamp,

apparently quite isolated from rocks in place. Owing to the quartz carrying large grains and nuggets of free gold it had, at the time of my visit, been completely broken up by hammers and sledges, in the hands of itinerant prospectors, into pieces, the largest of which were only a few inches in diameter. Many fine specimens, it is said, were obtained, and in examining the material remaining we had little difficulty in finding "shows" of gold. This mass which gives one a good idea of the richness of some of the quartz of the district appeared to me not to have been far removed from its parent ledge. It is said to have been very angular and hence would seem not to have been transported by glaciers any great distance. It would look as if it were a portion of a vein which probably projected a short distance above the surrounding surface on account of the wall rock being more readily acted on by agents of denudation. It would also seem that the mass had fallen or been shoved over, probably by a glacier, and perhaps carried a short distance. To the southward, a couple of hundred yards or so, a quartz vein was seen in place. If this vein is continuous under the surface, and its strike does not change, it must pass almost directly under the now broken-up mass of quartz which has been described.

My attention was, however, drawn to the fact that the quartz which occurs in place in the rock contains much lower values in gold than did the loose angular mass. While this is true, it is no proof that the two were not originally part of one and the same vein. It is well known that a vein, although its width may not vary, may show a great difference in values from point to point. This may be accounted for by a change in the character of the wall rock, and in other ways. Examples of this have been observed in this region. The Mikado vein, for instance, has been found to carry high gold values where it is confined by granite walls, and to show much lower value where it passes beyond the boundaries of this rock. The dip of the part of the vein which is in place on the White property is eastward.

United States Gold Mining Company.

This company was the third largest operator in the vicinity of the lake during the year. At the time of my visit, 31st July, eight men were employed but no mining was being done, and shortly afterwards all operations ceased. Ore from No. 2 prospect was being treated in the two-stamp Tremaine mill. Shaft No. 1 near the mill is said to have a depth of 100 feet, with cross section 6 x 8 feet, and is filled with water. It is also said to be timbered and to have a manway separate from the hoisting compartment. No. 3 is near the water's edge. It has a depth of 60 feet and is provided with a collar, but is otherwise untimbered. There is also a combined open cut and tunnel which runs about 125 feet N. 60° W. into the hillside. No. 2 shaft, which lies back on the hill, is 70 feet deep but has been abandoned.

The plant consists of the mill, to which reference has been made, two steam hoists, three steam drills, three sinking pumps, together with other machinery. The buildings on this property, known as No. 1, in order to distinguish it from another holding of the company which lies at some distance across the bay, consist of combined cook and sleeping camp, office, store house and blacksmith shop, in addition to the mill and other structures. The dynamite house is on an island, one-quarter mile from No. 1 mine.

The officers of this company are: E. G. Filer, president; A. V. McAlvay, of Manistee, Mich., secretary; E. A. Shores, jr., manager.

A brief visit was made to the No. 2 prospect of this company. Here a tunnel eighty or ninety feet in length, runs into the side hill from near the edge of the water. At the inner end of the tunnel a crosscut has been driven twenty-five or thirty feet to the west. The vein has been partially uncovered for a distance of one hundred feet to the south-west of the shore. The walls are granite, specimens of which show little decomposition or alteration at the point where the wall rock and the quartz of the vein form a junction. The quartz is irregular in form and the walls are not clear cut. Much of the quartz is dark in color.

The manager being absent at the time of my visit, I was unable to get a list of the locations controlled by the company. The main or No. 1 camp where the mill is situated is on the south shore of King's bay and the workings on No. 2 claim are on location BG 135. Thus both camps are not far distant from the upper end of the narrows which connects the upper and lower expanses of Sturgeon lake. King's bay runs westward from near the lower end of North bay.

Symmes' Prospect.

Following the shore of the North bay southward from the camp at the St. Anthony Reef, the next property on which work of importance has been done, is known as Symmes' location, B G 138 and adjoining claims. The strike of the vein which occurs in granite is approximately north and south and the dip is to the westward. No work was being done at the time of my visit, but I was told that the most southern of the two shafts had a depth of twenty-two feet and it measured 6x8 feet in cross-section. The vein has been stripped for a distance of about one hundred feet. The north shaft is about twenty-five feet distant from the one to which reference has been made. It has a depth of about fifteen feet. Stripping has been done for a distance of twenty feet west of the north shaft and east fifteen feet. The quartz at the bottom of the north pit is said to have a width of eighteen inches. The vein cannot be traced very far as the south end of the exposure disappears under a swamp and the north is covered. The vein is about 9 feet wide just north of the north shaft, but its width is variable. The vein matter consists of rather dark quartz, carrying iron pyrites, dark zincblende and occasionally visible gold. The granite through which the vein runs is porphyritic in character like that which shows at various points on the shores of Sturgeon lake

From these openings the vein can be picked up at one or two points going northward towards the shore and an outcrop on a small island B G 60 appears to be a continuation of it, judging from the strike.

Prospects on Couture Lake.

In addition to an examination of the St. Anthony Reef a brief visit was paid to a number of other properties in the vicinity of this lake. Location B G 170 includes an island of eight acres in the lake. A body of quartz which sometimes has a width of 25 or 30 feet occurs on this island. Its strike is towards the northeast, parallel in a general way with that of the green schist through which it runs. At times, however, the quartz breaks across the strike of the schist, the ore body not being bounded by definite walls. Very little work has been done on the deposit. The quartz in places carries a small amount of copper pyrites and iron pyrites, as well as a little tourmaline. Messrs. Forget, Rowan and Daigle control the property. The ore is said to pan well in places. A sample which I took across a considerable width of the deposit, being careful not to get above the average value, gave $2.75 in gold per ton of 2000 lbs.

A small island lying to the south has a large outcrop of quartz on its southern end.

On the large island to the east of the one just mentioned a quartz vein carrying some iron pyrites runs parallel with the strike of the enclosing chloritic schist. It has been stripped and opened up at a number of points for a distance of 200 or 300 yards. The dip of the vein is towards the east.

On the east side of Couture lake and somewhat southeast of the property just described is what is known as Martin's claim, H W 686. Its characteristics are similar to those of the last mentioned claim.

A little work was being done on a claim that was unsurveyed at the time of my visit, but which has since been laid out as location H W 747. It lies at the southern extremity of Couture lake and near the portage which runs from this body of water into the northeast

bay of Sturgeon lake. The quartz exposed in a pit was seen to be smoky or dark colored. In structure the deposit is similar to the last two claims mentioned.

It will be seen that the three or four claims last referred to possess characteristics in common in that the ore bodies are quartz veins in schist, the strikes of the vein and enclosing rock being approximately the same. They thus differ in structure from the St. Anthony Reef and the Symmes location.

The rock on B G 170 and some of the other claims on Couture lake may be described as chlorite schist, but in places it passes into or is closely associated with bands of more massive diabase and related trappean rocks.

Two or three claims were examined on the northeast bay or arm of Sturgeon lake. On location F M 207, the property of the Anglo-Canadian Gold Estates, the strike of the quartz vein is N. 10° E., and the dip, where it can be determined, is to the westward. Stripping and other work has been done along the vein at points for a distance of about 300 yards. A shaft, 6x8 feet, has been sunk at one point. As it was filled with water we did not learn its depth. The vein lies in chloritic schist which is in contact, near the south end of the vein, with what appears to be squeezed quartz porphyry. The body of quartz is more vein-like near the shaft. At other points it has the appearance of being a somewhat irregular segregation in the schist. The minerals associated with the quartz consist of small quantities of pyrite, copper pyrites and dolomite. The camp is at the shore, a trail about 150 yards in length running from this point to the workings. Quartz porphyry outcrops along the shore.

An examination was made of a number of claims on Belmore bay and in the area lying a mile or more to the eastward. Work has been done on a number of these, but no operations were being carried on at the time of my visit. As the geological characteristics of these claims are similar to those already described, with the exception of the St. Anthony Reef, it will not be necessary to enter into a description of them. Rich quartz has been found on a number of these claims, but it remains to be shown, by further development, in what quantity it occurs.

On a trip which was made inland from the shore of East bay, from a point which lies about two miles south of Belmore bay, two or three boulders of the somewhat rare rock, nepheline syenite, were found. These will be referred to again. The rocks in place here, a mile or less in from the shore, consist of granite in contact with a highly shattered rock of indefinite character. The latter is highly stained in places with iron rust.

STURGEON LAKE TO SAVANT LAKE.

I was advised that of the two routes from Sturgeon to Savant lake the one leading from the Northeast bay or arm of the former was easier, especially during dry weather, than that running from the north bay.

The first portage from the head of the northeast bay is over a half mile in length and runs in a northeast direction. There is considerable soft ground on the trail. The next body of water is a marshy pond about 200 yards long. Then there is a portage of about the same length which leads to a small pond. From here the route follows a small creek a short distance to a lake which has a bay stretching eastward about three miles. The general direction of this lake is however about northwest.

The rocks observed along this part of the route from Sturgeon lake may be described in a general way as greenstone schist. The lake referred to is known to the prospectors by the name of Nine-mile lake. Near its upper end the route turns off through a narrows and runs about north one mile to the foot of the portage. Although this lake is called Nine-mile lake, the distance we travelled on it did not seem to be more than six or seven miles. The portage we followed out of it is over a mile in length and is across muskeg for the greater part of the distance.

At the north end of the portage one bay of the lake which the route crosses stretches to the northeast and runs about three miles to a chain of portages which lead to lake Nipigon.

The other arm of the lake which our route followed runs to the northwest one-quarter mile. Then there is a pull up a small rapid, on the north shore, into a lake which is about one-half mile long. Then up a creek one-half mile from the west end of the lake to a pond-like expansion and a portage running off from the south side of a little falls. This portage is a little over 100 yards long. The rock here is granite, as it is also on the lake below. From here the route runs west 200 yards around a point. This lake is given the name Granite by the prospectors, the rock of this name showing distinctly on its northeast shore. We canoed up Granite lake three miles, the route turning to the northeast and the portage running from its east shore a short distance from the end of the lake. The portage is about 35 chains in length over schistose rocks and begins by a climb up a hill. The trail is good, much better than those crossed since leaving Sturgeon lake, as the route from the north bay of this lake joins that which we followed in Granite lake. All the travel from the two routes passes over this one portage. After this portage a pretty lake about 3 miles long, which extends from the portage in a direction somewhat east of north, is passed through. This lake has regular shores and is about one-third of a mile broad. The portage goes out of the east bay and a creek runs from the northwest bay to Savant lake. The rock on the shores is green schist. The portage leading to Savant lake is about two-thirds of a mile in length and the trail is good. A small creek of good spring water is to be found in the ravine just east of the north end of the portage.

The other route between the two lakes has been surveyed by Mr. Wm. McInnes, who states that leaving the north arm or bay of Sturgeon lake by a small brook, entering ten miles north of the outlet and ascending the brook for two miles, a portage of two miles leads to a lake about a mile in length. From the head of this lake a portage of thirty-five chains runs to a long narrow lake, Granite lake, extending north for over four miles. The remaining two portages and lake, nearly three miles in length, lying between Granite lake and Savant are common to this route and the one from the northeast bay of Sturgeon lake and need not be again described.

SAVANT LAKE PLACERS.

A brief description of Savant or Musipomigut lake is given in the Summary Report of the Geological Survey for 1901, pages 92 and 93. It is also referred to on pages 175 and 180 of the Report of the Survey and Exploration of Northern Ontario, 1900, published by the Crown Lands Department, where it is wrongly identified with Wahbahkimmung lake.

Mr. McInnes, in the Summary Report mentioned, states that his log survey of the lake proved "that there was little or no resemblance between the real lake and its representation on existing maps."

"We found it" he says, "to be a little over 23 miles in length in a direction about N 20° E. having a central portion forming the main lake eleven miles long by five miles wide, with a number of bays of considerable length branching from it. The Huronian belt of Sturgeon lake was found to be continuous almost to the foot of the lake, the two arms, one running northerly to the outlet and the other north-easterly, extending into the granite-gneisses on either side of the central belt.

"The lake is characterized by many shallow bays, that are divided from one another along the shore-line by long and irregular, rocky points, and at their heads, by areas of swamp. The central part of the lake shows wide expanses of deep water, while the narrower parts and the bays are for the most part exceedingly shallow, long stretches having only a few inches of water covering a bottom of slimy mud. The forest growth is for the most part of small size and consists principally of black spruce, poplar and white birch, with occasional red and white pine. This is the highest latitude (about 50° 35′) in which I have observed the white pine in this district.

"The Huronian rocks are of the usual kinds, with a large proportion of massive igneous types, and include a considerable thickness of schists, conglomerates and quartzites, similar to

those that occur in the same belt at Sturgeon, Abram and Vermilion lakes. A drift-covered area or basin similar to those occurring in other parts of the district, occupies part of the shores and islands of the central part of the lake The close resemblance of this drift area to that at Lac Seul makes it probable that they are similarly derived That at Lac Seul seems to have been laid down at the foot of a glacial barrier that cut off the drainage to the north, and so formed a lake basin between it and the higher land to the south. Pebbles in this drift contain fossils that seem to be of Devonian age and are probably derived from strata of that age, occurring to the north near Hudson's bay. The derivation of the drift about this lake is the more interesting, as colours of gold have been obtained from it."

The south end of Savant lake is narrow and is split at the southern extremity into two channels, the more western being the one the portage enters. The river from the last lake passed through enters Savant by a little falls a short distance up the west shore. About five miles up from the end of the portage is a deserted Hudson Bay post on the west shore near the foot of the narrows which connects the larger northern expanse of the lake with the smaller southern portion. The bay on which the post is situated has a sand beach and a sand hill lies a short distance inland.

As gold had been reported to occur in important amounts in the sands and gravel from some parts of the lake, we panned samples taken in the vicinity of the post with the object of verifying the reports if possible. We found, however, no "colors" in a number of pannings taken from the beach and from the hill inland. A couple of large double handfuls taken by myself along the shore about 100 yards west of the post, and near the top of the bank, gave one color of good size and shot-like form. The point from which this sample was taken lies about 8 feet above the surface of the lake which was then, July, at a high level for the time of year. The sand from which the sample was taken is very fine grained, light in color and occurs in layers. Other samples of the same sand gave no indication of gold on panning, leading to the presumption that the precious metal in the free state is very sparingly or very unevenly distributed through this sand, or that it was present in the one panning simply by accident. Rock, green schist, is exposed in place, a short distance back from the shore at this point. It contains stringers of quartz and is more or less rusted. It would thus seem that the gold in some of the sands may have come from no great distance.

Two or three miles farther up sand is exposed on both sides of the canoe channel and shows quite distinctly at a point where at one time there was an Indian village on the east side of the route. Some pits have been sunk along the west shore which will be referred to again. They lie a short distance south of the north end of the narrows.

Crossing a wide expanse of the lake from the head of the narrows, we came to a large island, which we shall call island No. 1. At the south end of this island, sand is exposed, and some pits have been sunk in it not far from the water's level. From a number of pans of the sand we obtained only one color. There is much magnetite in the sand and the shore is built up of gravel. On the north end of this island there is a high sand hill covered with a growth of beautiful Norway pine of medium size. This pine is of second growth, as is evident from one or two burnt stubs which we saw still standing. One color was obtained from a sample taken from the top of this hill. The deposits on the hill and island are gravel rather than sand, and are composed of pebbles of all kinds of white and other colored quartz, granite, quartz porphyry, green schist and small pebbles of jasper. It is from all appearances a glacial deposit. One or two pebbles of fossiliferous rocks were also obtained.

Since the deposit consists of such a variety of pebbles and the Huronian rocks of the region have been proved to contain more or less gold in numerous places, it is not surprising to find occasional grains of gold in the sand and gravel. The deposit resembles that which covers the area surrounding the height of land at various points.

Rock is in place on the south-west point of this large island. It is green schist. Some boulders of varied composition are found imbedded in the sand. They have diameters up to

two feet or more. Magnetite shows distinctly in every pan. In the pits which have been sunk near the shore it can be seen that coarse gravel in layers about two feet in thickness overlies the sand, giving evidence that the bank has been worked over.

On the next large island which lies to the north, deposits of similar material are found. The islands along the east side of the lake are composed of rock in place.

While the sand and gravel show very little gold in panning they do show values in the precious metal by fire assay. These values come from material, which is probably more or less refractory in the rusty fragments of rock in the gravel. Only a very small percentage of the gold can be extracted by placer methods.

The following results were obtained from the fire assay of samples collected by the writer :

FIRE ASSAYS OF SAND AND GRAVEL FROM SAVANT LAKE.

	Locality.	Weight of sample.	Gold value per ton of 2,000 lbs.	Silver.
1.	Sample taken 100 yards west of old H. B. Co.'s Post, and 8 feet above surface of water, July 28th	2 lb. 14 oz.	$2.00	trace
2	Two or three miles north of H. B. Co.'s. Post, from some pits on shore on west side of the canoe channel	2 lb. 12 oz.	$0.80	trace
3.	From top of hill on northern part of island No. 1	1 lb. 4 oz	$1 80	trace
4.	Ditto	3 lb.	$0.80	...
5	From opening in bank, near shore level, on southwest point of island No. 1	2 lb. 11 oz.	trace	.....
6.	Ditto. From pit 4 feet deep.	2 lb. 11 oz	trace	.. ....
7.	Near top of hill on island north of No. 1	3 lb	$0.80	trace
8	Ditto. From top of hill.	3 lb.	$0.80	trace

Mr. J. W. Wells, late Provincial Assayer, who made these assays, states that only traces of gold were obtained when the samples were subjected to the amalgamation test. This agrees with the results of our panning, and demonstrates that the greater part of the gold shown by the result of the fire assay is locked up in the fragments of rock and mineral of which the sand and gravel are composed. Mr. A. G. Burrows, the present Provincial Assayer, subsequently made an amalgamation test of the crushed samples of gravel and sand which had been left over from Mr. Wells' assays. As there was insufficient material to make a separate test of each sample the pulp from samples 1 to 8 was mixed. One pound of this mixed pulp gave 0.15 milligrammes of gold, which is equivalent to 19cts. per ton. This result does not, of course, contradict that obtained by Mr. Wells in his amalgamation test, Mr. Burrows' test being made on crushed gravel and sand while the material tested by Mr. Wells was uncrushed, or in the form in which it occurs in the field.

It will be seen from the report on the Vermilion river placers that the value of gold carried by those deposits is somewhat like that in the sands and gravels of lake Savant.[1] There appears, however, to be a great difference in the form in which the gold occurs in the placers in the two districts. Colors found in a pan of the Vermilion material sometimes number 40, and in a few cases run above 100. They appear to be very fine and difficult to save.

The placers of Savant lake are about 500 miles distant from those of the Vermilion river, the former locality being northwest of the latter. It may be interesting to note, however, that, while the Vermilion river is farther south than Savant lake, the one locality is situated about as near to the centre from which it is thought glaciers moved over this region as the other. This centre is believed to have been in the vicinity of James bay.

An account of the iron belt on Savant lake will be taken up under the heading devoted to iron ranges.

[1] Vermilion River Placers, by Dr. A. P. Coleman, Tenth Report Bureau of Mines, pp. 151-159.

LAKE MANITOU GOLD AREA.

This area was visited in the second week in November, 1902. Owing to the closing of navigation being so near at hand, it was not found possible to visit all the working properties without missing the last boat of the season. There was no object in spending two or three weeks in the district at that time of year, till travel began over the ice, as snow had already fallen and it was not possible to study the surface exposures of the rocks and ore bodies.

During the past year Upper and Lower lakes Manitou have been the scene of very active operations in gold mining and prospecting. In fact, it can be said that there has been more concentrated work in gold mining in this district than in any other area of like extent in the Province during 1902.

The geology of the area needs to be worked out more systematically in order to determine the character of the various deposits and their relationship to one another. The writer hopes to make an examination of the district during the coming summer.

Big Master Mine.

This property has attracted much attention to the district during the past year. As it was described pretty fully in the last report of the Bureau of Mines it will suffice to give an account here only of the changes that have taken place and the development carried out since the publication of that report

The company operating the mine is the Interstate Consolidated Mineral Company, the officers being, president, W. A. Blackstone, of Jamestown, N.Y., and secretary, M. A. Myers, of Warren, Pa.

The only change which has been made in the staff at the mine is the addition of Mr. Harry Hook as assayer. The number of men employed at the time of inspection was 42, of whom 12 were miners.

The main shaft now has a depth of 185 feet, being an increase of 15 feet since last inspection. First level is unchanged in length, but some stoping has been done amounting to probably 700 or 800 tons in the north drift. The second level is at a depth of 185 feet ; south drift 166 feet with stoping about 100 tons ; north drift 223 feet with some stoping An up raise, now 40 feet in height, has been started 185 feet in from the shaft in the last mentioned drift. The timbering in the shaft has been carried to the bottom in the same manner as in the upper part. A new pump, a Worthington, has been installed in the lower level. The aerial tramway from the mine to the mill has been completed. An assay office and other buildings have been erected during the last few months. The Helena shaft remains unchanged.

The big vein, or what is spoken of as the east vein in the last report, is reached by a cross-cut from the main shaft. No further development has been done on it, as the present plant is not adapted to treat the ore, which is of a refractory nature. It consists essentially of siderite with iron pyrites, and is said to carry gold in paying quantities. The gold probably occurs practically all in the pyrite. If so, there should be no difficulty in extracting it by the ordinary cyanide process. The gaugue carrying siderite resembles somewhat closely that of many of the auriferous deposits of Hastings county. Some work was being done by another company on an adjoining property, where it is said a similar vein of refractory ore occurs. I, however, did not get an opportunity of visiting it.

The Big Master stamp mill was not running at the time of my visit on account of the lack of fuel. The ore which has been treated during the past season is said to have given high returns.

Summit Lake Mining Company.

In the latter part of 1902 three companies which had been organized to work properties in the Manitou district were amalgamated under this name. The officers of the newly organized company consist of president, A. F. Maclaren, M.P., and general manager, S. V. Halstead.

On the Little Master, A L 206, which is claimed to be on a continuation of the Big Master vein, pits have been sunk here and there and one shaft has attained a depth of 100 feet. In December work was begun on another vein.

On the Imperial property, G 19, there is a shaft 50 feet deep.

On the Peninsular, H W 31, a shaft is down to a depth of 110 feet and cross-cutting is being prosecuted at this level in order to determine the width of the vein. At 60 feet in depth a cross-cut 14 feet in length was driven.

The company have up to the present employed about 20 men, but this number, it is expected, will be increased shortly.

Machinery, consisting of air-compressor, pump, hoisting apparatus and air drill is being ordered and will be installed early in 1903. Development will then be vigorously prosecuted.

The National Claim.

I am informed that since my visit work has been started on the National claim, situated on the border of Three Hundred lake. The government road is said to run across this property.

Giant Mine.

This property is described in the last report under the heading, Locations H W 74 and 75. It is on Mosher bay, an eastern extension of Upper Manitou lake, and is operated by the Giant Gold Company. Mr Daniel Simpson, of Buffalo, is manager, and Mr. Paul Paulson, is in charge of the work at the mine. Twelve men are employed, of whom nine are miners.

On H W 75 work is being prosecuted in a shaft which had reached a depth of 50 feet. A tunnel said to be a 100 feet in length has been run into the hillside on location H W 74 Considerable stripping has also been done on these claims. Machinery was being put in place at the shaft. It consisted of a Jenckes 5x5 in. special hoisting engine, diameter of drum 12 in. length 21 in., complete with foot brake, etc , a 10 h.p. vertical tubular boiler, Cameron sinking pump, 2 in. suction and $1\frac{1}{2}$ in. discharge, one 24 x 30 x $1\frac{1}{4}$ in. Cornish kibble, etc.

The camp, which is near the shore of the bay about 300 yards from the shaft, consists of neat buildings recently constructed, comprising two-storey office 16 x 24, dining room 20 x 40, kitchen 16 x 36, and barn 12 x 18. At the shaft is a blacksmith shop and dry-room. A dynamite house has been built since last inspection.

Twentieth Century Mine.

This property is pretty fully described in the last report. I did not visit it during my trip to the lake, as I was told the only changes made since the last inspection were in connection with the mill which was nearing completion at the time I was on the lake. No mining was being done, as it was considered advisable to concentrate the work on the completion of the mill, skipway and surface plant, before the severe weather set in.

Royal Sovereign Mine.

This property, which was being worked at the time I was in the Manitou district, was like a few others, not visited on account of the lateness of the season, and the irregularity of the trips then being made by the two small steamers on the lake, which were busily engaged taking in supplies to the lumbering and mining camps.

EAGLE LAKE GOLD DISTRICT.

This district lies about 25 miles north-west of the Manitou field. It is reached by steamer from Vermilion Bay, a station on the Canadian Pacific railway, 60 miles east of Rat Portage. No very extensive development has yet been done on the claims surrounding the lake. At the

time of my visit work was being prosecuted on four claims. Accounts of the geology of the district by Mr. McInnes will be found in reports of the Geological Survey, Ottawa.

The Northern Light Mines Company.

The head office of this Company is in Buffalo, N.Y. It was incorporated in 1902 under the laws of Arizona. Joseph E. Gavin and W. H. Barnhart, of Buffalo, are president and secretary, respectively. Mr. Newton Higbee, of Rat Portage is superintendent.

The claims on Eagle Lake controlled by the company are said to be the following : M H 244, 246, 248, 250, 252, 257, 258, 339 ; S 459, 460, 461, 464, 465, 492 ; McA 288 ; D 560.

Two shafts are being sunk, one on each of two locations. That on M H 246 had reached a depth of 16 feet at the time of my visit in November. On M H 257, known as the Eldorado claim, the shaft is 31 feet deep. A two-stamp gravity mill has been erected near the shaft and will prove of great value in testing the ores from the various claims owned by the company as they are being developed. Sleeping and cook camps are also situtated on this claim, not far distant from the mill. Arrangements were being made for the erection of a powder house, which was badly needed.

The company own the small steamer Caro, by means of which supplies are brought in from the railway.

At the time of my visit twelve men were employed, of whom six were miners.

Golden Eagle.

This property belongs to Mr. N. Higbee. It is expected that development work will be resumed in the near future. The shaft is said to be 75 feet in depth with drift north 100 feet and south 60 feet, at the 50-foot level.

Grace Mine.

This property, which has the same name as the mine already described in the Michipicoton district, was being worked by a small force of men last autumn. It is said that a tunnel or adit runs into the hillside from the lake shore and that a shaft is down to a depth of 15 feet. The powder house is on an island in the lake in sight of the steamboat channel. The company have a small steamboat on the lake.

Viking Mine.

A contract to sink a shaft to the depth of 80 feet had been let on this property, and at the time of my visit to it in November sinking was in progress, the shaft at that time being 30 feet deep. Pits, together with stripping, are found on other parts of the property.

Baden Powell.

Development is proceeding on this property under the direction of Mr. R. H. Ahn. About 40 tons of ore have recently been taken out and tested at the Eldorado mill. A shaft is to be sunk on the open cut and preparations were being made for continuing work throughout the winter. A boarding house 32 x 32 feet has recently been built, and roads from the shore to the works have been improved.

LAKE OF THE WOODS REGION.

This gold mining field, judging from the number of properties now being worked, appears to be rapidly recovering from the evil effects of the boom of a few years ago. At the time of my visit, in the middle of November, work was or had recently been in progress on the follow-

ing properties, namely, Flint Lake, Golden Horn, Golden Reef, Indian Joe, Mikado, Nino, Olympia, Wendigo. Arrangements were also being made for the resumption of work at other mines and claims.

Flint Lake.

This property is being worked by the Flint Lake Gold Company, head office, Philadelphia, Pa. There is a shaft sunk to a depth of 27 feet, with cross section of 6x11 feet, and a pit 12 feet in depth. The vein is said to be 8 feet in width and to have been stripped for a distance of 350 feet. As the vein stands, it is claimed, at a height of 20 feet above the edge of a swamp it is proposed to quarry this and mill it before doing other development work. A Krupp ball mill is being erected. The following buildings are on the property, namely, dining and sleeping camps, blacksmith shop, assay office and powder house. The ice was taking on the canoe route to this property at the time of my visit to the district. Hence I did not find it possible to make an inspection. I am indebted to Capt. Jones for the foregoing data.

Golden Horn.

Twenty men, of whom ten were miners, were employed at this mine in November. Mr. H. Rideout is manager.

The shaft is 184 feet deep. First level, at 100 feet east drift 75 and west 45 feet. Preparations are being made to start the second level at 166 feet. The partition between the manway and hoisting compartment is now complete down to the first level and the shaft is timbered to the second level. Planking is on the ground for the completion of the timbering.

Machinery, put in since last report, consists of No. 5 Cameron sinking pump, return tubular 50-h. p. boiler and other plant.

New buildings comprise two dwelling houses, a building to cover hoist, boiler and compressor, also a store house, stable and blacksmith shop, together with enlargement of the sleeping and dining camps to suit present requirements. A small steamboat and barge have been purchased by the company. A powder magazine has been built as requested at time of last inspection.

Golden Reef.

In the last report this property is described under the name of Mikado Reef. It is now operated by the Golden Reef Mining Company, whose head office is Traverse City, Mich.

The shaft, 7x9, is down to a depth of 100 feet. At this level there is a drift north 50 feet and south 40 feet. It is the intention to proceed immediately with sinking to the 200-foot level. The shaft collar is made of sawn timber and is 14 feet in height. The manway is not divided from the hoisting compartment.

The dip of the vein is towards the east. The ore carries much iron pyrites and is said to pan well. Nine miners and three surface men were employed under the direction of Mr. H. J. Shields Drilling is done by hand, the machinery at present in use consisting only of 14-h. p. boiler and hoist. Several camps have been erected. The powder is stored on an island.

Indian Joe.

The Great Northwest Company who are developing this property control a number of locations in the vicinity of the north shore of Clytie bay, among which are 352 E A, 352 E, 354-5-6-7-8 E, 336 E, 339 E, 305 E and 306 E. The men employed, who are in charge of Capt. J. P. Williams, are ten in number, of whom six are miners. Mr. J. W. Cheeseworth, of Toronto, is the financial agent of the company.

On the Indian Joe location, to which the work was confined at the time of my visit, a shaft, 10 x 13, had reached a depth of 60 feet. The strike of the vein, according to Capt. Williams, is northeast and southwest, and the dip is at an angle of 75° to the northwest. The vein

is described as possessing a banded character, and is made up of quartz, iron pyrites and schist. Work on other locations consists of two shafts, 15 and 20 feet deep respectively, and an open cut 15 feet in length.

Machinery was being installed, consisting of Worthington pump, 30-h.p. boiler and hoist. The camp, which is situated near the shore, consists of two or three recently erected buildings.

Mikado Gold Mine.

Only twenty men were employed at this mine at the time of my visit in November. The mill had been shut down some time before, and the work was confined to development.

Drifting was in progress on the 4th level, north, of No. 1, or the vertical shaft. The drift had reached a length of 525 feet, and was to be carried under the lake where the rock has already been tested by diamond drill, and good values are expected to be obtained.

It may be mentioned that in this mine, which has produced upwards of $500,000 in gold, the best values are always found where one or both walls are composed of granite. It is claimed that this condition prevails in that part of the vein which runs under the lake.

A winze, which was down 20 feet below the fourth level, or 260 feet from the surface, was being sunk from the end of the crosscut on the fourth level. This winze will be connected with the shaft above, and will thus form part of a new shaft. Work, with the exception of diamond drilling, will be confined to this shaft and its levels for some time to come.

Since the last inspection considerable work has been done on the inclined shaft, which now reaches a depth of between 1,300 and 1,400 feet. On the 9th level the drift was carried south 800 feet from the shaft. On the 10th level, which is 100 feet below the 9th, 60 feet vertical, the south drift is about 75 feet in length. It may be added that some stoping was done between the 8th and 9th levels.

No new work has been done on No. 2 vein. The skip way will have to be put in condition before work is continued here. It is intended to test No. 3 vein by the diamond drill at a depth of 650 feet from the surface.

It is to be regretted that the development work which is now being carried on in No. 1 shaft was not done before the ore reserves in the inclined shaft were exhausted.

Nino.

The Nino Mining Company control locations J E S 93 and J S 110 on Tille lake, east of Whitefish lake. The property is now reached by a canoe route on which there are six portages. A road is however to be cut out from the head of Lobstick bay.

According to Mr. Chas. Brent, the gray granite in which the vein occurs is a continuation of the Eagle lake belt. The development work consists of a shaft 110 feet deep and an adit level 60 feet in length. It is intended to secure power from the Caribou falls, which are two and one-half miles distant. There is said to be a fall here of 60 feet.

The machinery at the Boulder mine has been purchased and is now being taken into the property. It includes a 7x10 duplex hoist, a seven-drill duplex compressor, three locomotive boilers and saw mill.

The head office of the company is in Toronto. Mr. William Chaplin of St. Catharines is president, and Mr. Chas. Brent of Rat Portage is the consulting engineer of the company.

Olympia.

The Olympia Mining Company are sinking a shaft on location M 11 which has reached a depth of about 95 feet. Mr. S. J. Griffiths is manager of the company. The property lies a short distance south of the Mikado mine.

Wendigo.

In November 8 men were said to be at work on this property under the direction of Mr. Fred Pfau of Rat Portage. The operators are the Chippewa Consolidated Gold Mining and Milling Company, with head office in Buffalo. A shaft is down to a depth of about 100 feet. The location is on Witch bay. Descriptions of the property will be found in the ninth and tenth Reports of the Bureau of Mines.

Other Properties.

It is expected that work will be resumed on a number of other properties in Lake of the Woods district at an early date. Mr. J. F. Caldwell is reported to have secured the support of foreign capital and will continue development work on the Sultana in the early spring. It seems to be agreed by those most intimately acquainted with this property that mining operations ceased last summer, not on account of the failure to locate ore bodies, but owing to disagreements among the operators.

The well known Black Eagle, (formerly Regina), which has been closed down for some time, is highly spoken of by all those who should be in a position to know the character of the ore bodies. I made inquiries concerning the shutting down of this mine, and the information I received led me to the conclusion that it was due to neither the quality nor the size of the ore body but owing to outside causes. Men who should know and who speak from a disinterested standpoint state that there is no more promising ore deposit in the district than that of the Black Eagle. The history of the property certainly seems to point to extravagant management, at times at least. It is much to be desired that operations be resumed on this property, as with no great amount of development work and with comparatively slight changes in the plant it is believed it would be a steady producer. This would do much towards attracting capital to this gold field and would give stability to the industry in the district.

Among other properties on which it is expected work will shortly be begun is the Violet which lies three miles northeast of the Nino. An option has lately been given on this claim. It is also stated that option money has recently been paid on the Gold Panner.

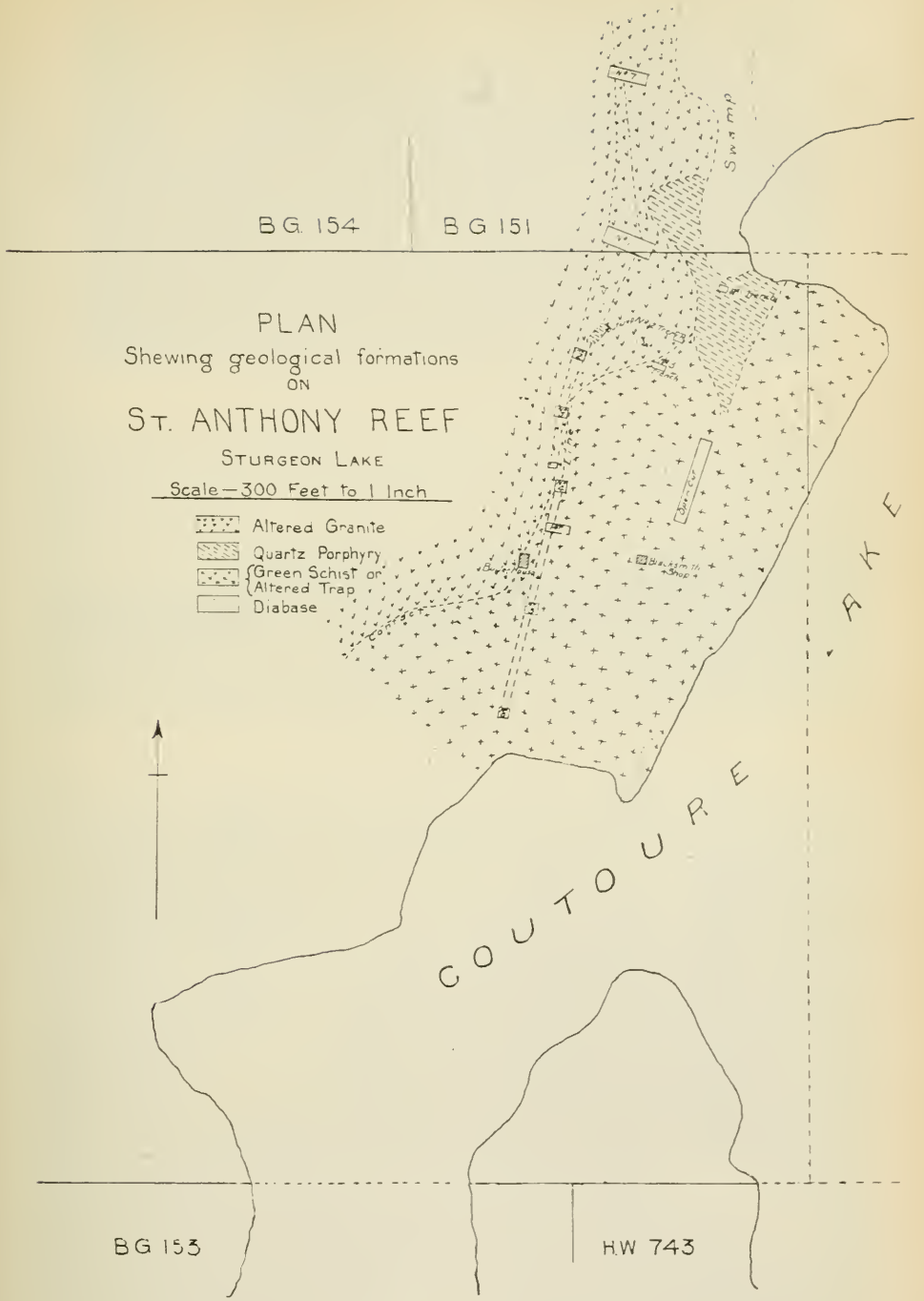
The recently organized Keenora Mining and Milling Company is said to control the following properties, viz: Dominion Reduction Works, Scramble, D 217 and claims on Cedar Island, Lake of the Woods. Mr. M. A. Myers of Warren, Pa., is secretary of the company.

Silver Mines

While silver is found associated with gold in all the deposits of the latter metal, there are other well known properties in the northwestern part of the Province which have been producers of silver alone. The metal occurs in these chiefly as the sulphide, argentite, and also to some extent in the native form. An interesting and instructive report on the geology of this silver field, by Mr. E. D. Ingall, is to be found in the annual report of the Geological Survey of Canada for 1887-8.

Recently interest has been renewed in this field, and during the last year while only one property was a producer work of a prospecting character was done on a number of other claims.

Two American companies, of both of which Mr. M. A. Myers is secretary, have recently been organized, and they control the greater number of the silver properties The Consolidated Mines Company of Lake Superior is said to control the following properties, namely, East End Silver Mountain, West End Silver Mountain, Porcupine, Badger and Keystone or Climax. The Beaver, Rabbit, Silver Creek, Rabbit Junior, Black Fox and North Bluff, are held by the Algoma Mining Company.


B.G. 154
B.G. 151
PLAN
Shewing geological formations
ON
ST. ANTHONY REEF
STURGEON LAKE
Scale—300 Feet to 1 Inch
Altered Granite
Quartz Porphyry
Green Schist or Altered Trap
Diabase
Swamp
COUTOURE LAKE
B.G. 153
H.W. 743

Victoria Mines: Smelters.

Sand hills, Island in Savant lake.

Miners' hand-drilling contest.

Rock Lake copper mine.

Rock Lake copper mine; Concentrating plant.

WEST END SILVER MINE.

Work on the proposed changes mentioned in the last report was in progress at the time of my visit, 17th November. The mill was run till 1st August, and it was then necessary to shut it down on account of the alterations being made.

A dam and reservoir have been built in the gulch on the hill 1500 feet from the mine. A centrifugal pump is being put in at Lizard lake to pump into the reservoir if necessary. Six additional Frue vanners are being put in the mill, making nine altogether. A new shaft house, 24x24 and 30 feet high, has been built and the shaft is being timbered. The boiler house, engine house and blacksmith shop are part of the shaft house. A double cylinder Bacon hoist and cage with safety attachment is being put in the shaft. Three new boilers, return tubular, manufactured by the Jenckes Machine Company, are to be added to the equipment. The stamp mill now has a capacity of 30 stamps. The dynamite is stored the same as formerly, but a new magazine is being arranged for. A new store and office building is to be erected.

Mining work since the last report has been confined to the second and third levels of the main shaft. Second level, east drift, is now 375 feet in length, stoping continued at a point 252 feet from the shaft. Third level, east drift, is now about 550 feet in length ; back stoping has been continued above this line ; at 420 feet in, the crosscut south is 64 feet, and has cut two small veins one and one-half and two feet wide respectively, and penetrates the large vein at 64 feet.

The employees number 40.

Copper Mines

The Sudbury mines are our greatest producers of copper, but the metal here is to be considered rather as a by-product of the nickel industry than as an essential constituent of the ores. The other copper properties in northwestern Ontario contain various ores of the metal, chief among which is copper pyrites, although other sulphides are also often present.

Outside of the area immediately surrounding Sudbury, the only producing copper mine in the Province at the present time is the Rock Lake mine, which lies some miles north of Bruce Mines. The ore at this mine is simply concentrated and shipped to the United States to be smelted and refined. Other properties are approaching the producing stage, and if the promise which they now show is fulfilled it is believed that a local smelter will be erected.

The copper properties now being developed lie, with one exception, in the district immediately north of the north shore of Lake Huron. Three or four are reached by the Sault branch of the Canadian Pacific, the most eastern of these being the Massey mine. Five or six properties are under development along the line of the Algoma Central railway, within 40 miles of Sault Ste. Marie. In the region lying west of Port Arthur only one copper property is being worked.

Attempts have been made from time to time to work deposits of native copper on the eastern and northern shores of Lake Superior, where formations carrying more or less of the metal and similar in character to those in the great copper district on the south shore are found. So far these attempts have met with little success.

MASSEY STATION MINE.

This mine, which has been described in previous Reports of the Bureau of Mines, lies within about four miles by wagon road of Massey Station, 58 miles west of Sudbury. A branch railway, which will be three miles in length, is to be built from the station to the mine. A mile is already graded, the ties required are nearly all on hand, and rails for two miles have been secured.

During the last year, work has been confined to the main shaft, which has now reached a depth of 330 feet, an increase of 97 feet. First level, 74 feet from the surface, unchanged. Second level, 150 feet from the surface ; west drift, 130 feet, an increase of 10 feet ; east drift unchanged. Third level, 220 feet from the surface ; drifts have been run about 16 feet in either direction, and a station has been cut. Fourth level, 290 feet from the surface ; east drift 80 feet, and west 60 feet, and work is to be continued in these drifts. Sinking will also be continued to 600 feet.

There is a lined track for the hoisting bucket, but the ore is handled in a skip, tools, etc., being carried in the bucket. Square sets and dividers have been put in, wall plates and a double track with back runners to the fourth level. There is a pentice below this level. Cars will run from the levels and dump in the skip. A rock house for handling 150 tons a day has been built. A new Lidgerwood hoist, to handle 3 tons a load, is to be put in at once, and it is intended to make this part of the plant complete and up-to-date. A 60-h.p. locomotive boiler is being added. A new straight line 5-drill air-compressor and Northey pump have been added since the publication of the last report.

The number of men employed is 30, of whom 22 are miners. The officers of the company remain the same, with the exception that Mr. R. C. Barclay is now secretary at the mine.

The ore being highly silicious will be shipped to Sudbury, and used in the smelters with the more basic nickel-copper ores.

OTHER PROSPECTS.

It was the writer's intention to have made a somewhat detailed examination of the copper deposits along the north shore of Lake Huron during the past summer, but it was not found possible, owing to pressure of other work, to do much more than pay a hasty visit to the working properties.

Within what may be called the Massey area the following lots are said to have been taken up as copper claims, viz. : lots 2, 3, 4, 7 and 8 in the sixth concession of May ; section 12 on the Sable river, in Salter ; and a number of claims near Whiskey lake and McCool's lake in the northern part of township 137. The property of the Massey mine includes E. $\frac{1}{2}$ or S.E. $\frac{1}{4}$ of section 16, S.E. $\frac{1}{4}$ of S.W. $\frac{1}{4}$ of 16, S $\frac{1}{2}$ of 15, S.W. $\frac{1}{4}$ 14, W. $\frac{1}{2}$ of S.E. $\frac{1}{4}$ of 14, N. $\frac{1}{2}$ of S.W. $\frac{1}{4}$ of 13, or 860 acres. Massey station is in the centre of section 25.

A number of copper prospects north of Blind river station have recently been attracting considerable attention. I am indebted chiefly to Mr. M. J. Scott for the following information concerning these properties. Messrs. Mackenzie and Mann are said to have an option on locations 87 and 88 P in township 163. Surface work only has so far been done. The projected line of the Manitoulin and North Shore railway runs within one quarter mile of the property. There is a good water power at the White Falls Scott Bros. have a group of claims in 167.

Twelve men are said to be at work in the Huston mine, in the township of Montgomery. A New York syndicate is also said to be working in the same township. A number of other discoveries of copper ore have been made in adjacent townships.

BRUCE MINES.

An account of the recently constructed plant and of the condition of affairs at this mine was given in the last report. Since its publication mining operations have not been resumed. Tailings are being constantly shipped, however, as they have been for a number of years, to the Canadian Copper Company at Sudbury, where they are used to flux more basic ores. It would appear that they should soon be replaced for this purpose to a large extent, at least, by the silicious copper ores from the vicinity of Massey.

ROCK LAKE MINE.

On 2nd December, when this property was visited, it was found that mining operations during the past year have been confined to the workings above the third level. Since that date, however, arrangements have been made to continue the sinking of the shaft, which now has a depth of 420 feet, and a new hoisting outfit is to be put in position.

First level, northwest drift, 324 feet, an increase of 155 feet. Intermediate drift is 30 feet in length. The stopes in the northwest drift have been enlarged. The southeast drift is 248 feet in length, an increase of 108 feet. At 60 feet in, the crosscut southwards is 39 feet in length; then from its end there is a drift eastward 35 feet, and then crosscut again 59½ feet. The overhand stope in this drift has been enlarged and is now 150 feet in length. At 90 feet in, the crosscut of 17 feet remains the same. Two openings to the surface, one east and the other west of the shaft, serve for ventilation.

Second level, northwest drift 248 feet, an increase of 120; slope begins 178 feet west of the shaft and is 15 feet high and 10 feet wide. The southeast drift remains unchanged. There has been no change below the second level.

Hereafter the ore is to be hand-picked or sorted at the mine before going to the concentrators at the mill. The building in which the sorting equipment is placed is 55x16 feet. The ore is thrown on a belt conveyor which is 30 feet in length and 30 in. in width, with board sides 2 in. high. Boys or men will do the sorting, throwing out the barren pieces of rock as the ore is carried past them on the belt.

The powder magazine now in use is near the shore of Rock lake. The thawing house, the situation and character of which were criticized in the last report in the Inspector's book, blew up last summer, fortunately without injuring any person, and a new one 10x8 feet has been built. It is placed farther back from the railway track and is heated in the same way as the old one.

The railway, which has been completed for some time from Bruce Mines station to within a short distance of the mill, is in use for shipping concentrates. It is almost completed from the station to Bruce Mines village and will shortly be in running order the whole distance, from the concentrating plant to the village of Bruce Mines.

Additions have been made to the concentrating plant during the past year, including a set of rolls, an Overstrom and a Wilfley table. A sleeping camp has also been erected. When running at its full capacity the mill treats about 120 tons of ore in twenty-four hours.

The number of men employed at the mine is 150, of whom 40 work underground, and at the concentrator there are 30 employees.

Mr. W. C. Madge has recently been appointed mill superintendent, and Mr. W. Wearne mine captain. At the beginning of 1903 Mr. Geo. P. Good was appointed manager of the mine.

COPPER QUEEN.

I did not visit this mine, which is referred to in the last report as one of the properties of the Sault Prospecting and Development Company. It is situated in the township of Morin, about 16 miles by road northeast of the Rock Lake mine. The mine is now owned by the Copper Queen Mining Company, Limited, which was incorporated in May, 1902. The company is reported to control 960 acres of land, the east end of the property adjoining Shelden lake. The secretary, Mr. R. N. Adams, of Sault Ste. Marie, Mich., informed me that No. 1 shaft is 140 feet deep, at which depth a crosscut was being started in December. No. 3 shaft has a depth of 20 feet. Five or six men are at work.

The main shaft is now down as deep as it is advisable to go with the present hoisting plant. Recently a plant has been ordered from the Ingersoll-Sargent Company, and it is intended to prosecute the development of the property energetically.

INDIAN LAKE.

This property, which lies a mile distant from the Rock Lake mine, has been developed to some extent since the publication of the last report, but at the time of my visit operations had ceased. It is also known locally as the Kimberley.

SQUAW CHUTE.

In the vicinity of Squaw Chute, on the Mississaga river, development work has been done on some copper prospects. One of the ore exposures is on an island in the river at the rapids, and other claims lie across the river to the eastward. The properties in the neighborhood controlled by the gentlemen associated in the enterprise are said to comprise the following, in the township of Haughton, viz. :—The south half of lot 4 in the fourth concession, the south quarter of lot 3, the south half of lot 2, and the south half of lot 1 in the same concession, together with the north half of lot 3 in the third concession. Mr. J. L. Ripley, of Sault Ste. Marie, Michigan, is one of the owners.

A number of prospects are being developed to the eastward of the Algoma Central railway, and within 40 miles of Sault Ste. Marie. The owners belong for the most part to Sault Ste. Marie, Mich.

TAYLOR MINE.

This copper property lies about 8 miles east of the Algoma Central railway, and is reached by way of Silver Creek siding

The shaft was down 90 feet on 29th November, and ladders had been put in position. The tunnel or adit was 60 feet in length, an increase of 35 feet. It is intended to continue the sinking of the shaft and to put on two shifts. Up to the present 9 men have been employed, of whom 3 are miners. Mr. R. H. Taylor of Sault Ste Marie, Mich., is manager. The property is described in last year's Report.

RANSON MINE.

The shaft and buildings of the Ranson Copper Mining Company are on the southeast quarter of lot 12 in the 5th concession of Chesley.

The buildings consist of sleeping and cook camp 22 x 22, an office 16 x 16, a blacksmith shop and barn for four horses. A store house 20 x 20 is being constructed.

Machinery, consisting of 50-h.p., boiler, a two-drill air-compressor, a No. 5 Cameron pump and a hoist, has recently been ordered from the James Cooper Company. The company expects to get control of about 3,600 acres of land.

The shaft was down to a depth of 35 feet in December 1902, and other work had been done. About 25 men are employed.

TOWNSHIP OF MCMAHON.

Mr. D. J. Ranson has eight men at work on lot 11 in the sixth concession of this township. A shaft is down 14 feet. Machinery is to be put in at an early date.

SUPERIOR COPPER MINE.

A rather full account of this property is given in the last Report. Since its publication some changes have been made in the staff, Mr. Frank M. Perry, the secretary-treasurer, being now in charge at the mine, and Mr. W. M. Edwards having recently been appointed chemist. Messrs P. A. Derry and A. H. Derry are mine captain and master mechanic respectively. The number of men employed is 48, of whom 20 are miners.

Shafts Nos. 1 and 4 are unchanged. No. 2 shaft is 90 feet deep, northwest drift 90 feet at first level. At the end of this drift there is a crosscut 33 feet to the southwest. The southeast drift is 20 feet, and there is a crosscut from this 75 feet to the southwest and 10 feet to the northeast. This shaft is provided with a solid timber collar 15 feet in depth. The ladder way and hoisting compartment are divided to a depth of 60 feet.

No. 3 shaft has a depth of 105 feet. First level at 60 feet; drift northwest 20 feet and southeast 15 feet. Second level at 100 feet; northwest drift 12 feet with crosscut to the southwest 41 feet. The shaft has a solid timber collar 18 feet in depth.

No. 5 shaft which lies about 300 feet north of No. 2, is 25 feet deep, 29th November 1902, and is being worked with hand windlass and has temporary timbering at the mouth.

No. 6 is apparently on the same strike as No. 5. It is 15 feet deep and lies northwest of the latter.

Nos. 5 and 6 represent the most recent work done. The lode on which they are situated appears to dip to the southwest while the other lode dips to the northeast. There is 350 feet between the surface exposures of the two lodes. The ore being taken from shafts Nos. 5 and 6 at the time of my visit showed a high percentage of copper pyrites.

Since the publication of the last Report considerable additions have been made to the plant. The boiler house is 32 x 50. There are now in use two 60-h.p. boilers, a six-drill Ingersoll-Sargent air-compressor and two hoists, 30 in. drum. Four machine drills are running night and day. A No. 4 Cameron pump has also been added to the plant.

An office building 22x26 and two stories high, has been erected. The drying house is 16x18. The upper story is used as a lunch room for the night shift, thus adding greatly to the comfort of the men. The building is heated by a pipe from the boiler house.

The new dynamite house is 10x12 and is provided with a door and lock. It is situated at a distance of about 750 feet from the works. A larger thawing can has been provided, as suggested at the time of the last inspection.

A route for a spur from the railway has been located. It is said to be four miles and a half in length and to present no difficulties of construction.

GOULAIS BAY.

The Tecumseh Copper Company of Sault Ste. Marie, Mich., president H. Schurman, and secretary M. T. McDonald, are beginning operations at Goulais Bay. Information obtained from the officers of the company is to the effect that a contract has been let to sink a shaft, 6x11, to a depth of 50 feet. The property consists of the southwest quarter of section 14, township of Yankoughnet. Camps are being built. The ore is said to possess value in both copper and gold. The property is reached by wagon road, 8 miles in length, which runs from the Algoma Central railway at a point 16 miles from Sault Ste. Marie, Ont.

TIP-TOP MINE.

This is the only copper property in the Province that is working west of the northern part of Lake Superior. It is separated by a considerable distance from those just described. However, there would appear to be no difficulty in making use of one smelter for all of these mines if it were situated near the foot of Lake Superior. Ore from none of the properties would have to be carried by rail a great distance to the lake shore.

This mine which lies south of the Canadian Northern railway and eight miles from Kashaboie station, with which it is connected by a recently constructed government road, has been systematically developed during the past year.

All the work has been done on location K 65. On 1st November 1902, No. 1 shaft was 160 feet deep, an increase of 104 feet, and sinking was to be continued. The first level is at a depth of 50 feet. The second level is at 100 feet and has a crosscut north across the ore body

25 feet in length. There is also a crosscut at the third or 150 foot level. Work has been confined to No. 1 shaft during the past year.

A three drill Rand air-compressor, two machine drills, No. 3 A Cameron pump, and No. 7 Blake have been added to the equipment since the last Report. A dynamite house has been erected. Arrangements are being made to prosecute development work vigorously during the coming year.

The ore body strikes approximately east and west, and lies at or near the contact of talc schist on the north and green schist on the south. Along this line of contact there has been considerable disturbance, with perhaps some faulting, and a felsite dike runs parallel to the ore body.

The green schist, judging from its character at the bottom of the shaft and on the south along the edge of the ore body, appears to be an altered or squeezed quartz diabase. A short distance west of No. 1 shaft diabase showing little alteration and containing quartz grains is exposed in places. It shows the characteristic spheroidal weathering. The quartz grains in the schist and in the diabase are often bluish in color.

On the third level of No. 1 shaft the felsite dike has been cut through to the north of the shaft, and ore lies on either side of it. The ore consists of copper pyrites, pyrrhotite and iron pyrites. It carries values in gold in addition to the copper. The values are found both in the schist and in felsite and quartz. What has been called chalcedony appears to be a very fine grained aphanitic felsite or quartz porphyry. To the east of the present workings and near the boundary of the location is an outcrop of gabbro.

It seems likely that all the rocks associated with the ore body are volcanic in nature. The talc or sericite schist on the north may have been an ash rock originally, and the green schist along the south is probably, as already stated, an altered or schistose quartz diabase. The ore body looks much better in the workings than on the surface. It often happens that ore bodies which weather easily are decomposed down to a point where a leaner layer or mass comes in. This frequently represents the present surface of the ground, the overlying decomposed material having been carried off by the action of water and glaciers.

Iron Mines.

In that part of the Province lying west and northwest of Sudbury there has been only one producing iron mine during the past year. This is the Helen mine of the Michipicoton Mining Division. As somewhat detailed descriptions of this mine and the area which surrounds it have been given in the last two or three Reports of this Bureau, I shall not attempt to do more than mention the changes which have taken place at the mine since the date of the last official inspection.

THE HELEN MINE.

My visit to the Helen mine was made on 21st November. The most noticeable change which has taken place is in connection with the amount of drifting or underground work which has been done during the last few months. The deposit has been turned from essentially a quarry or surface working into an underground mine proper. Between March and November approximately 1300 feet of drifting had been done.

Important changes are also being made in the plant and surface arrangements. The west skip road, known as No. 1, is to be done away with, as it interferes with the moving of the ore. A new road is to be put in on the extreme west end. It is to have a double track down to the bottom of Boyer lake. This will be at the same distance from the surface as the development work on the first level, and will eventually connect with all the underground workings of this level.

A new vertical shaft, begun 12th July, is now finished, the station having been cut, pump house completed and pipes put in place. A crosscut has been started towards the ore. It runs from a point 90 feet below the first level and is now 40 feet in length. The shaft lies about 40 feet south of the edge of the ore body, 70 feet west of No. 1 shaft and close to the railway track. One or more new crushers are to be installed, for which all preparations have been made. The crushers are to be of the Austin type and will be in readiness for the operating of the new shaft.

When the new engine house is finished, all the old plant is to be abandoned and will be taken down next summer.

A new coal dock has just been completed. Heretofore the coal has been carried on flat cars and has been handled with shovels. Now it is brought up in 50-ton steel cars, dumped and run by gravity to the new boiler room which will hold 1500 tons.

This boiler house is 175 feet west of the new shaft. The hoist, double drum, with capacity of three and one-half tons to each drum, can raise 2000 tons per day. The boilers are of 125-h. p. each and were supplied by the James Cooper Company. They are 72 inches in diameter and 15 feet in length, and of the return tubular pattern. Two of the old boilers will be taken out and placed with the new ones, thus making a battery of four, giving a combined h. p. of 475.

There are two Ingersoll-Sargent air-compressors, one of seven and the other of ten drill capacity, which will be removed from the present temporary quarters and placed on permanent, very substantial, foundations, built of stone and cement.

The men now employed number 230, consisting of miners, trammers and surface men. They all work by contract, trammers getting so much per car of ore handled, and miners so much per foot for drifting, including putting in timbering, tracks and tramming their own waste. They have to throw this dirt out of their way in any case, and by doing their own tramming they save the time that would be lost in waiting for timbermen.

The production of ore for the year, the superintendent stated, would be over 355,000 tons.

The diamond drill now operating in Boyer lake has penetrated 100 feet of what is said to be a very clean iron pyrites. This is to the west of the mine proper. The company is considering the advisibility of putting down an independent shaft to handle the pyrite so as to keep it free from the iron ore. All the pyrite is in a large body similar in consistency to a sand pile. This characteristic of the pyrite found in the vicinity of the Helen mine is mentioned in last year's Report. The pyrite is overlain with 40 feet of mud and 20 feet of intermixed pyrite and sand. The clean pyrite will be penetrated by drifts, using the square set system, and it is believed that there will be little loss of the pyrite in mining. By using one of the methods employed in mining large bodies of soft iron ore, the overlying loose deposits can be kept from becoming intermixed with the pure pyrite. Boyer lake will have to be kept dry, but this will not be a difficult matter. There is not enough work done on the deposit as yet to determine its size, as its boundaries have not all been located.

As there is a good demand for high grade iron pyrites at a price of about $5.00 per ton it will be seen that the mining of it, if in a large body, should be much more profitable than the production of iron ore.

Further notes on the Helen mine will be found, in this volume, in Mr. D. G. Boyd's report on the Michipicoton Mining Division.

THE NEWER MICHIPICOTON IRON PROPERTIES.

Considerable work of a prospecting character was done by the Clergue company during the past year on other iron properties in the Michipicoton Mining Division. Mr. E. F. Bradt, who was in charge of the work at the time of my visit, stated the ore body at the Josephine had

been proved by diamond drilling to be over 3000 feet in length, and at a depth of 500 or 600 feet it was found to have a width or thickness of 50 feet. The ore is said to be superior to that of the Helen mine, being of Bessemer quality. This ore body had been examined only by the diamond drill, but a shaft was being put down at the edge of Parks lake, whence drifts will be run to strike the ore which lies under the lake. The shaft had a depth of 93 feet and was equipped with a hoist, a three-drill Ingersoll-Sargent air-compressor and a 100-h. p. Mumford boiler. As the property is connected by rail with Michipicoton Harbor every facility is afforded for its rapid development. A peculiarity of this deposit compared with those of districts having a similar geological structure is the depth at which the ore body appears to lie beneath the surface of the ground. It is true that on the Vermilion range of Minnesota ore bodies have been worked at a much greater depth, but in their case the ore was followed down from or near the surface.

At the Frances claim two diamond drills had been used, and very fair prospects of good ore were met with at a depth of 500 feet or more.

At Iron lake a diamond drill was being put in place. An ore body is known to occur here, but its size has not been determined. It was cut by a tunnel driven some time ago but has not been followed in length or depth. The conditions are said to be most favorable for the finding of a large body of ore.

A deposit, known as Brant lake, discovered for the Company by Messrs. Bell and Scott in 1902, is said to be one of the most promising iron deposits in the district. The ore here outcrops at the surface.

It was stated that diamond drilling was to be done on a pyrite deposit which lies 12 or 15 miles northeast of the Josephine.

NOTES ON ROCKS.

The following notes describe specimens of rock which were collected in various parts of northwestern Ontario during the past season's field work. Most of these rocks have been briefly referred to on preceding pages.

Nepheline Syenite.

I have already stated that several boulders of nepheline syenite, a couple of feet or so in diameter, were found not far from the east shore of the upper part of Sturgeon lake. Syenite somewhat similar in character, but in which no nepheline was observed in hand specimens, was seen in place on the shore of what the prospectors call Nine-mile lake, on the route from the northeast arm of Sturgeon lake to Savant lake. This outcrop was not carefully examined. It is extremely likely, however, that the nepheline syenite is in place in the district lying between the two lakes, judging from the character of the outcrop seen, which was not carefully examined, and from the fact that boulders of nepheline-bearing rock are somewhat abundant some miles to the southward.

The interest in the finding of these boulders, 150 miles northwest of Port Arthur, lies in the fact that they show nepheline syenite to exist farther to the northwest than had previously been known to be the case. The occurrences of this rock, which was formerly placed among the rare varieties, in Hastings county and adjoining territory in the most eastern part of the Province, as well as across the Ottawa river in Quebec, at lake Kippewa and other points, and along the north shore of lake Superior in the vicinity of Port Coldwell, have been described in the last three or four volumes of the Bureau of Mines. A unique type of nepheline-holding rock has also been described from the southeastern part of the Rainy River district. It is thus shown that nepheline as a rock constituent occurs widely distributed in the Archæan districts of the Province. These rocks are of economic interest from the fact that the corundum deposits, which have given rise to an important industry in the eastern part of the Province during the last three or four years, belong to the same series.

Hand specimens of the Sturgeon lake boulders show the rock to be light gray in color, and medium to coarse-grained in structure. The minerals that can be made out with the naked eye are feldspar, nepheline, black mica, magnetite, apatite and pyrite.

Feldspar is the most abundant mineral in the rock and appears to be, so far as can be determined without the use of the microscope, all of the alkali variety. Carlsbad twinning is shown by some of the individuals which exhibit a tendency to take on a crystal outline, being set in a ground mass of nepheline.

Nepheline is the most abundant constituent after the feldspar. On a weathered surface, which is, however, not characteristic of all the specimens, the nepheline has become stained a light brown, while the feldspar is to all appearance unaltered. The latter mineral here makes up approximately two-thirds of the mass of the rock, and the former one-third.

Black mica is, after nepheline, present in the greatest proportion. In one specimen there is considerable apatite. This mineral shows a tendency to associate itself with the mica.

The magnetite is present in subordinate amounts. One octahedral crystal, which has a diameter about two-thirds that of a pea, reminds one of the occurrence of this mineral in the nepheline syenite of Hastings county.

One or two cubes of pyrite are present in the specimens. They have diameters of about the same length as that of the magnetite crystal just mentioned.

As is well known, nepheline rocks show a great tendency to exhibit variety of grain and mineralogical composition in comparatively small parts of the same mass, or even in a single hand specimen. It is therefore difficult to give a clear idea of the characteristics of a mass of this rock by discribing a few thin sections.

Two small sections of the hand specimens described were examined microscopically by Prof. R. W. Brock, who has kindly furnished me with the following account of them :

"The rock is a hypidiomorphic granular one, consisting essentially of microperthite, microcline and hydronephelite, nepheline, with some biotite, amphibole and a little diopside (?) A little magnetite and some calcite secondary after the pyroxene are also present.

"The feldspars which make up the bulk of the rock are hypidiomorphic—some of them show crystal outlines. They have the well-marked cleavage and other characteristics of the alkali feldspars. No lime-soda feldspar was seen.

" Hydronephelite ; A clear white mineral in leafy or columnar aggregates filling the interstices between the feldspar crystals. Index of refraction is low, double refraction high. It possesses rude cleavage parallel to the long axis of the columns, and this is the direction of the axis of least elasticity. Uniaxial. Positive. Gelatinizes with acids. It is no doubt an alteration product from nepheline which originally filled the interstices between the feldspars.

"The biotite is the most abundant colored constituent, but is present in only small amount in the sections. It occurs in two forms, in stout thick plates, having a deep brown color scattered through the sections, and in small green scales, giving generally a lath-shaped section showing perfect cleavage. These occur in groups, and do not appear to be altered forms of the brown biotite.

"Amphibole ; Several large crystals of a deeply colored bluish green amphibole, somewhat resembling arfvedsonite, occur in the section. They do not show crystal terminations. The pleochroism is strong : C—deep bluish green, B—olive green, G—deep yellowish green. $C > B > G$. The double refraction is low. The extinction is high, $C : c = 20°$, which differentiates it from arfvedsonite. $B = b$, so that the clinopinacoid is the axial plane. It is optically negative—the axial angle appears to be small. It sometimes holds inclusions of brown biotite and is somewhat decomposed. It resembles arfvedsonite in some respects, but the latter has an extinction of $C : c = 76°$. Hastingsite bears a close resemblance but its extinction is 30°.[2] A very similar amphibole is described by Dr. Wright from an alkali syenite from Beverly, Mass.[3]"

St. Anthony Reef.

A thin section of the granite from near the ore body when examined under the microscope is seen to contain microcline and lime-soda feldspar in forms approaching phenocrysts. Quartz occurs rather sparingly, and there is considerable secondary matter present.

2. Am. Jr. Science. 1896, p. 210. 3. Tschermak's Min. and Mit., Band xix., Heft 4.

The green or brown schist in the vicinity of the deposit contains much calcite or dolomite, together with biotite, quartz, feldspar and specks of magnetite.

The dark massive medium-grained rock which outcrops a short distance southwest of the blacksmith shop has the characteristics of a diabase rather than those of a gabbro. Under the microscope the ferro magnesian minerals are seen to be changed to chlorite. In this are set laths of plagioclase.

A thin section of the unsqueezed quartz porphyry from a part of the rock near the ore body was found to consist of a fine-grained crystalline ground-mass, through which are set phenocrysts of plagioclase, lime-soda, quartz and orthoclase. The rock is therefore more properly called a quartz-porphyrite than a porphyry.

Route, Biscotasing to Flying Post.

A greywacké-like rock on the west shore of the canoe channel below the portage into Opeepeesway lake is composed of fragments of quartz, lime-soda feldspar and other minerals set in a fine-grained ground-mass.

On either side of the belt of banded silicious series of rock, on the portage into the southern end of the lake just mentioned there is a gabbro-like rock. A thin section of this rock from the north side of the belt, at the upper end of the portage, contained hornblende and lime-soda feldspar, and proved to have a structure approaching that of diabase. A similar section from the south side was found to possess a more indefinite character. It contained quartz, hornblende or actinolite, epidote and other secondary minerals.

A medium, even-grained, pink granite which outcrops on a point opposite an Indian's cabin on the lake, which was taken to be Marion lake as marked on the map, contains hornblende, quartz, orthoclase, microcline, and garnets. A little micropegmatite is also present.

A specimen of quartz porphyry taken from the foot of the first lake above the mouth of Woman river contains phenocrysts of orthoclase, plagioclase and quartz. Chlorite is also present.

A specimen from a point a short distance south of the one just mentioned was found to be a very fine-grained, much decomposed trap.

Granite or aplite outcrops at the foot of the first portage below the mouth of Woman river. Parts of the rock are composed of phenocrysts of plagioclase, together with quartz, biotite and orthoclase. Finer grained dikes in the mass are composed of a finely crystalline ground-mass through which are set phenocrysts of orthoclase and plagioclase.

A rock which outcrops on a little island in the upper part of Matagaming lake is a quartz hornblende diabase. It is coarser grained than typical diabases.

A porphyritic granite which occurs on the east side of the narrows at the upper end of Matagaming lake is seen, in hand specimens, to have a grayish to pinkish color and to contain crystals of feldspar which are set in a medium-grained ground-mass. Under the microscope the feldspar phenocrysts are seen to be plagioclase, and the individuals of hornblende also show a tendency to take on a crystal outline. The latter mineral is partly changed to chlorite.

The slate which occurs on the west side of the Ground Hog river, along the south edge of the iron belt was found to possess no unusual characteristics when a thin section was examined under the microscope. It is very fine-grained and of a uniform structure. The point at which it outcrops is four or five miles north of Flying Post.

Other Localities.

A trap rock which outcrops immediately west of the village of Chapleau contains phenocrysts of feldspar, of the character formerly called Huronite. Finer grained, narrow, black dikes, of apparently similar composition to the mass of the trap cut through it at various points. This fine-grained material proves to be a rather striking rock when

examined microscopically. It is an augite porphyrite which shows a very strong resemblance to a rock described some years ago from the banks of the Rideau canal.[4] Phenocrysts of feldspar, labradorite, and augite are set in a fine-grained crystalline ground-mass which is made up of needles of plagioclase, grains of magnetite, etc. The augite phenocrysts are older than those of the labradorite. The coarser grained rock through which these dikes cut has a similar mineralogical composition.

A thin section of the crystalline limestone from Geneva lake was found to possess no unusual features. The rock is very fine-grained and uniform in composition.

Thin sections of the dark massive rock which outcrops immediately south of Massey station show its chief constituents to be hornblende, lime-soda feldspar, and orthoclase. The rock resembles diabase to some extent, but its constituents appear to have crystallized out at very nearly the same time, and thus have grown together or interfered with one another, the feldspar having been prevented by the others from taking on the perfect lath-like form so characteristic of diabase.

[4] Can. Jour. Science, Oct., 1895.

MINES OF EASTERN ONTARIO.

BY W. E. H. CARTER, INSPECTOR.

The past year has witnessed a greater all-round advance in the mining business in the eastern portion of the Province than ever before. On the nickel-copper range about Sudbury, although a temporary suspension with some of the companies prevailed, several new properties entered the list of active producers and maintained or exceeded the previous annual output. Another gold mine with its mill joined the other working gold mines in Hastings county. The output of a few of the larger iron mines has been steadily maintained, in strong contrast to the usual intermittent policy of development of these properties. Several new feldspar prospects, another corundum property, and a zinc mine, the last a new mineral in economic occurrence in this part of the Province, have begun production. In the graphite industry two new mines and another refinery are in operation; and in the mica field, although the number of active mines remains about the same, the yearly production has been more than doubled, to handle which increase several large new trimming shops have been built.

A gratifying improvement is noticeable throughout the mines as a whole in the safer methods employed in mining and in the handling of dynamite and other explosives. There is, however, still much to be desired in the latter respect, which can be realized only by the gradual education of the more inexperienced or ignorant miners up to the necessities of the case.

Gold Mines.

The active operators are still confined to the eastern Ontario gold belt which centres about Hastings county. A new property in Kaladar township has been recently opened up with active development, and at Deloro the Atlas Arsenic Company's mine and mill were again put in operation. On the other hand the Deloro mine has closed down, presumably only temporarily if indefinitely, since the underground workings are by no means barren of ore. The Belmont mine is developing into one of the largest gold properties in the Province, and may even become the largest if the proposed plans for doubling the equipment be carried into effect.

DELORO MINE.

In March 1902, while sinking a winze from the fourth to the prospective fifth level, a heavy flow of water was struck in the mine workings, which poured in so rapidly that in a very short time the lower levels were flooded and all stoping and extraction of ore brought to an end. Before the pumps obtained control of the water the mill had closed down for lack of ore; and it has remained closed ever since. With the resumption of mining, therefore, it has been possible to direct all efforts to the necessary work of blocking out more ore in both the new lower level and in the lateral extensions of the vein, for although there still remain scattered bunches of ore in place through the Gatling workings and in the intersecting veins, without the exposure of new bodies the quantity is hardly sufficient to warrant raising and milling.

The arsenic plant has continued in steady operation, refining the concentrates accumulated from recent and former mill runs, and a lot from the adjoining Atlas Arsenic Company's mill.

The contemplated amalgamation of the different interests in the gold-arsenic properties of this district has unfortunately been balked several times when on the point of completion. Even though it be possible to work these small scattered veins separately at a profit, the returns, from some of them at least if one concern managed all, could be increased sufficiently to make the difference between a paying and a losing proposition. The scheme of amalgamation involved the centralization at the Deloro works of the other existing reduction plants, to

form one of adequate capacity to treat ore from all the veins in the district which might prove capable of being worked at a profit, for the arsenic alone if the gold values were low, and then to refine the concentrates in the present arsenic plant.

By later word from the manager, Mr. P. Kirkegaard, I learn that all operations at the mine and works were suspended early in March 1903, and will likely remain so until some such agreement as above outlined can be arrived at.

The employees at the time of my visit, 10th January 1903, numbered 45, of whom ten were miners, under foreman E. Croft. The surface plant remains the same, but only the compressors have run continuously, and these in order to supply air to the pumps, and latterly to the three machine drills.

In the last underground work all remaining ore on the main or Gatling vein above the second level was removed, and below this down to the fourth level the large stopes were further extended, leaving now but a comparatively small tonnage of ore in sight. The Gatling (or main) shaft has reached a depth of 347 feet (101 feet increase) maintaining the former incline of 55° west. Second level north: near the end of the west crosscut therefrom, and on the Air vein an upraise out of the narrow stope is being carried to connect with the bottom of the old Air vein shaft, when, having established proper ventilation, the remaining ore will be stoped out. Third level: north drift 16 feet (new). Fourth level: south drift 393 feet (10 feet increase); at 24 feet in, a crosscut east 35 feet; at 207 feet in, an inclined upraise along the foot-wall of the vein to the third level with, directly below, its continuation down as a winze 101 feet deep (in the bottom of which the flow of water was struck), the original intention being to use this as an auxiliary hoist way. It appears that this winze runs along the intersection of the Gatling, and another vein thought to be the Dowd vein. Its dip is about 60° west, while that of the Gatling is but 55° or less west, and its strike a few degrees further west of south than the latter vein. Fifth level, depth 328 feet (new): opened up from the main shaft; south drift 87 feet and now driving to connect with the foot of the winze from the level above.

The Gatling vein was followed down by the shaft for 40 feet below the fourth level where it pinched out; but by continuing down at the same incline the hanging-wall of another vein was struck at 70 feet depth, dipping here a little flatter and with a strike that points to an intersection with the winze, from which latter fact it is concluded to be the Dowd vein. Along the fifth level it gradually widens from 3 feet at the shaft to 5 feet in the face, and is composed of quartz and mispickel. A heavy flow of water still gushes from the foot-wall of the vein in this drift, but is now kept down by an adequate number of pumps, two located on the fifth level and one on the fourth, all raising to the well in the Tuttle shaft, whence the air lift sends it to the surface.

Red shaft: after reopening with some development the workings have again been closed; depth 155 feet. First level, depth 42 feet: south and north drifts unchanged; east drift 57 feet; and west drift 12 feet. Second level, depth 150 feet; south drift 117 feet (new). The four drifts on the first level explore spurs of the ore body, which is quite irregular in its make-up of quartz fillings along schistose bands radiating from a disturbed centre.

Air shaft: depth unchanged at 83 feet. First level, depth 42 feet; south drift, 40 feet. Ore was stoped out here and raised early last year, but this work was suspended until connection could be completed with the main mine by the upraise now driving from the second level west crosscut.

The methods of handling the dynamite, both above ground in the thawing house and in the underground storage places, were not altogether satisfactory, necessitating instructions for the general safety.

ATLAS ARSENIC COMPANY.

The Pearce mine has continued in operation all year and was joined last August by the Five Acre mine. Since October, with the reopening of the stamp mill, all ore from both places has been shipped thither for treatment. Under the manager Mr. W. A. Hungerford, and foremen Dan McCrimmon (of the Five Acre mine) and John Auger, (of the Pearce mine), the employees number 60.

Pearce shaft: depth unchanged, and mining restricted to breaking out the ore above the bottom or 150-foot level and extending the drifts at that depth. The first, or 65-foot level, has merged into the open stope. The second level drifts run north 110 feet, and south 86 feet, both following the vein which, to the north, varies from 5 to 6 feet in width to within 50 feet of the face where it pinches down, in consequence of which further development north has been suspended; and to the south it is from 6 to 8 feet in width to near the face where it narrows a little, but with walls again diverging gives promise of greater continuity in this direction. The stope above this south drift decreases in height from 25 feet at the shaft to 15 feet at the face, with a narrow pillar left paralleling the drift as a support to the roof. Drilling is done by three air-machines taking compressed air through a three-inch pipe from the power plant at the Five Acre mine, about one-third of a mile to the north. The original skids and bucket hoisting apparatus have been replaced by rails and a skip, and in the power-house another boiler of 60-h.p. installed. From here the ore is hauled to the mill at the Five Acre.

Five Acre shaft: depth the same, namely 200 feet. At 80 feet depth an inter-level drift has been run south 80 feet. First level, depth 100 feet; north drift 100 feet, previously stoped out to full length and in height to near the surface, with a width of 5 feet; at 75 feet in a crosscut running 20 feet east strikes another similar and parallel vein on which drifts have been run north 50 feet and south 50 feet and an overhand stope made 20 feet high and 3 to 8 feet wide from end to end. One machine is now breaking ore here. Second level, depth 190 feet; north drift 135 feet now being continued with stoping overhand on the vein, which here varies from 4 to 5 feet in width to within 25 feet of the face of the drift and then broadens to 15 feet, the ore composed of quartz carrying mispickel and pyrite. The south drift, 51 feet in length, follows the line of fracture of the vein, but found only small quantities of quartz intermixed with wall rock, so that development here has for the present been suspended. The working levels are solidly timbered. The ore is hoisted out by the skip road and dumped into other cars to be drawn up the trestle to the top of the adjoining stamp mill building. The mine being fairly dry, one pump suffices to keep the water down.

The surface plant has not been altered. The accumulated concentrates from the three months' mill run were hauled over and treated in the arsenic refinery of the adjoining Deloro mine.

COOK MINE.

Development has continued under the same management and with an average force of about 11 miners, since last inspection, but no more ore was treated after the mill was burned down in March. After continuing sinking as far as practicable with the steam drills in the No 1 shaft, this working was closed and the small power plant of boiler and hoist shifted farther north to a new shaft, the No. 4, on another vein. Mining has since been confined to this point.

The pit in the marsh was sunk a little deeper in the morrainal bed of auriferous quartz boulders[1], but with no further developments. At other points over the company's lands superficial prospect work was carried on during the summer months.

[1] Bur. Mines, Vol. 12, p. 234.

No. 1 shaft; depth 179 feet, maintaining the same incline of 25° south. At 70 feet depth a drift runs west 32 feet; at 80 feet depth another east 20 feet; and at 139 feet depth a winze branches off to the west on a 45° incline in that direction to a depth of 35 feet. A considerable tonnage of mineralized quartz was raised, and all not milled placed on the stock pile at the shaft. The water had risen in the shaft at the time of inspection, 9th January 1903, making an examination impossible.

No. 4 shaft; located about 1500 feet northeast of No. 1 shaft, depth 120 feet on an incline of 45° west. First level, depth 90 feet, south drift 45 feet. Hoisting is done in a bucket on skids by means of the small hoist engine in the adjoining power shed. Several improvements for the safety of the workings were advised. Drilling progresses in the face of the drift with one steam machine.

The vein which No. 4 shaft is exploring, strikes north and south with a dip of 45° west through a dark diorite formation and is lenticular in character, waving in and out from 18 inches to 6 feet in width. White, coarsely crystalline calcite forms the chief matrix, intermixed with a little quartz, wall rock with mica, pyrite, chalcopyrite and occasionally a little mispickel. The values are said to be in gold and copper.

BELMONT MINE.

The Belmont Gold Mines, Limited, with head office in Newcastle-upon-Tyne, England, and Canadian office at Cordova, Ont., was organized last fall as a separate company to take over and conduct operations at the Belmont mine. The transfer of the property was made on 1st January 1903, by the parent concern, the Cordova Exploration Syndicate, of England. Mr. D. G. Kerr remains as manager. The Belmont property now covers 450 acres in one block in Belmont township, Peterborough county, and the adjoining township of Marmora, Hastings county. A considerable portion of this has been surveyed into town lots, which are for lease to employees or others desirous of building at Cordova. The company itself has erected a number of private frame dwellings for rent to the employees. Altogether the town about the mine is assuming respectable proportions.

Last summer active interest was taken in adjoining lots by parties prospecting for the extensions of the Belmont lodes, and the success attained in the work leads to the expectation that more systematic development will follow this year.

Inspection of the mine was made on 8th and 9th January, 1903. It was found that mining had during the year been confined mainly to stoping and raising the ore previously blocked out in the No. 1, No. 2, and No. 3 shaft workings without much drifting or other development either here or in the rest of the shafts, for the reason that until completion of the new hydraulic plant to furnish compressed air, insufficient power was available for more than getting out the supply of ore for the mill. A good deal of stripping was done over the surface for the purpose of locating the various lodes in greater length.

No. 1 shaft; depth 410 feet (the same). First and second levels; no new development. Third level, west drift 190 feet (85 feet increase); east drift 135 feet (4 feet increase), with at 40 feet east a crosscut 40 feet south, 40 feet in width, from the end of which a drift runs southeast 170 feet. Fourth level, east drift 200 feet (11 feet increase). The stopes noted in the last Report[2] as just opened have been extended, and crosscuts run through them on the different levels to both walls of the ore body. Along some of these crosscuts the stopes have been widened out to the full extent of the vein, which is thus seen to vary from 8 feet to nearly 60 feet in width. In several places the stopes measure from 30 to 50 feet in width, all reported to be pay ore. At some points, however, this large body is broken into two veins by the presence of a barren band of rock which has been incompletely or not at all metamorphosed with the rest of the ore.

[2]Bur. Mine. Vol. XI, p. 235.

The stope timbers are well loaded with ore ready for removal. All the rock is hoisted to the shaft house floor, washed sufficiently to roughly sort out the gangue, and then trammed around to the mill. The working levels are being solidly timbered and lagged overhead, in the wide stopes the square set system being adopted.

No. 2 shaft is still maintained with complete hoisting appliances as an auxiliary to No. 3 shaft, and for a ventilation way.

No. 3 shaft is continuing down, being at the above date 40 feet below the third level or 325 feet deep in all. First level; unchanged. Second level ; the only development consisted in connecting the winze, sunk from a point 338 feet in the west drift, with the third level. Third level; east drift unchanged ; west drift, 352 feet (75 feet increase), connecting at face with the above winze for good ventilation. The stopes between Nos. 2 and 3 shafts and those west of No. 2 have been enlarged and extended down to the third level. East of No. 3 shaft the stope between the first and second level now extends down to the third level, and is showing the ore body up as a chimney of somewhat irregular outline about 40 feet wide by 90 feet long. There is reported to be about 18,000 tons of ore on the timbers in all these stopes.

No. 7 shaft was re-opened in December, 1902, and sunk a few feet deeper to allow of completing the timbering, which work is now in progress.

At the other shafts no resumption of development has yet taken place.

The hydraulic power plant has been entirely completed as per specifications given in my last report, with the result that now all the mine, mill and other machinery is operated by means of the compressed air furnished by it. The present duplex turbine connected with and operating the compressor is capable of generating only 1,000-h.p. of the total 1,300-h.p. capacity of the water power, and to develop the remaining 300-h.p. a T connection has been left on the flume beside the present terminal to attach another Leffel turbine ; this would operate the dynamo at this point, which is now run by compressed air from the mine. This addition to the plant is expected during the present season. The old steam power plant at the mine has up to the present been left intact, and will so remain until such time as it can be sold.

Several alterations and additions to the surface and mining plant are proposed for this season, such as the doubling of the stamp mill capacity to a total of 60 stamps, and the removal of the crushing plant from the top of the mill back 200 feet or so to No. 1 shaft, to be there set up again, in a new combined shaft, crusher and sorting house, where all ore will be treated before entering the mill.

T. W. Fisher and W. Scott fill the positions of foremen with 170 employees under them.

INTERNATIONAL MINE.

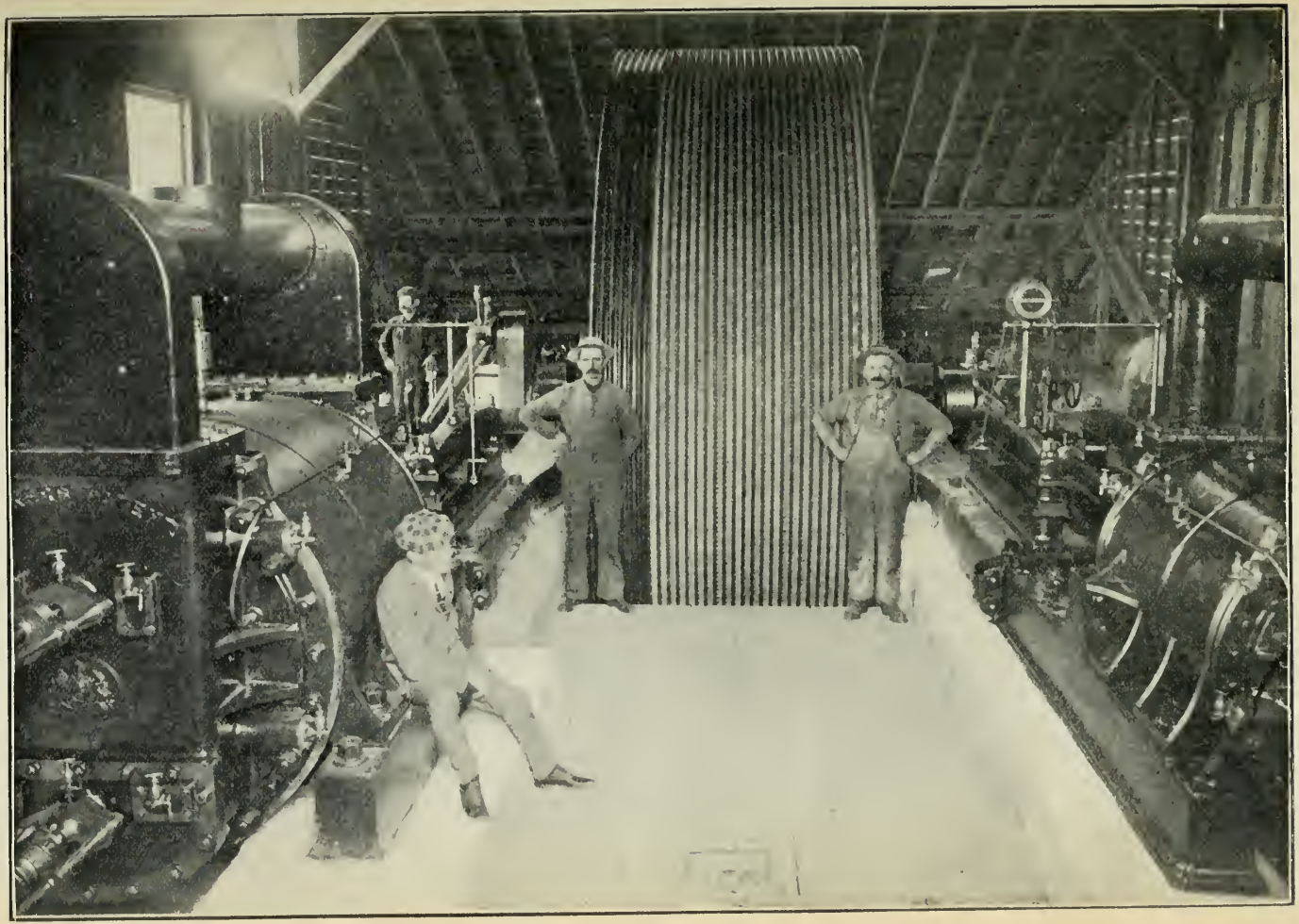
The International Gold and Copper Company, Limited, incorporated under the laws of the State of Arizona, but now operating under license in Ontario, has its head office in Buffalo, N.Y. The properties purchased in this Province are located on lots 6, 7, 8 and 9 in the ninth concession of Barrie township, Frontenac county, 22 miles by road northeast of Kaladar station on the C. P. Ry.

Mining commenced in August 1902, under superintendent R. E. Erdman, and with an average force of 15 men. Seven test pits have been sunk at intervals over three-quarters of a mile of the quartz vein, and at two other points 200 feet apart on the same lead two shafts sunk 70 feet and 40 feet respectively. These shafts are now being continued down, but with no lateral drifting other than short crosscuts from the former at the 60-foot level. The vein carries as its chief values gold and silver. In order to satisfactorily cope with the flow of water in the shafts a 50-h.p. boiler and two duplex pumps were brought in.

Besides the power-house, the camp buildings comprise office, blacksmith shop, dynamite magazine and shaft houses.

Belmont gold mine; Falls at outlet of Deer lake.

Belmont gold mine: Hydraulic power plant, showing water flume and air pipe.



Belmont gold mine; Compressor at hydraulic power plant.

Belmont gold mine; Flume line to hydraulic power plant.

The above information was obtained from the Toronto agent of the company, no visit to the property having as yet been made.

Iron Mines.

In the eastern Ontario iron fields most of the important producers of ore of last year and earlier have remained in fairly active operation. Such properties as the Radnor and those connected with it, those of the Mineral Range Iron Mining Company, and those near Calabogie have either in depth or laterally developed into promising mines. The companies operating them, together with others of sufficient capitalisation, are evincing their interest in the magnetic iron deposits of this character by frequent acquisitions of both newly discovered locations and older properties which have lain idle for lack of the means to continue development.

From the district north of Kingston, in Frontenac county, some samples of excellent iron ore, both magnetite and hematite, have been obtained from properties which it is reported will be opened up this season. Also north of Sudbury on the iron ranges already fairly well defined in the region about lakes Wahnapitae and Temagami, bodies of magnetite have been located and sufficiently developed to warrant the hope that they will prove workable deposits. But here, although without a doubt considerable activity will prevail in the matter of simply prospecting and locating, there will be no ore production of account by reason of the existing lack of railway communication.

CANADA IRON FURNACE COMPANY.

This company has widened its scope of operations during the past year by taking up and developing new properties, in addition to the original Radnor mine. The west half of lot 17, in the ninth concession of Grattan township, has been acquired and named the Big Jim property; and lot 26 and the south half of lot 14, in the range south of the Opeongo road, Brougham township, named the Dacre mine; the former adjoining the Radnor mine lot and the latter about seven miles south of it. Mr. J. D. McCuan is manager of all the properties.

Radnor Mine.

The main open pit has increased in size to 40 feet in depth by 150 feet in length, the width remaining as before, 35 to 40 feet. In the bottom of the east end a 10-foot shaft was sunk for exploratory purposes, and near the west end, at the foot of the hanging or south wall, a development shaft, was put down 80 feet deep, on an incline of 35° south, and equipped with a skip road from the bottom to the top of the open cut or the surface, a total distance of 115 feet. In size the incline is 8 feet high by 18 feet wide. It follows down on a vein of magnetite 10 feet wide at the top, but narrowing to 6 feet at the bottom. At 20 feet depth a drift runs 20 feet east, in good ore: and in fact, good ore remains on both sides from the pit floor down, to be removed when the warm weather returns. This main pit working has produced altogether about 7,000 tons.

For 300 feet west of the main pit and along the face of the hill the outcrop of the magnetite vein has been stripped and shows a width of from 4 to 10 feet of ore. At the west end of this working another pit has been opened out since December last, 30 feet long by 20 feet wide by 18 feet deep, exposing an 8-foot vein of magnetite, from which already between 400 and 500 tons of ore have been raised. Hoisting is done by swinging arm derrick, bucket and horse.

The ore from all these workings is piled either in bins or simply on the hillside above the road, where it can be conveniently loaded by chute into the sleighs for haulage to the railroad.

The heaviest hauling is done in the winter, and was not more than well under way at the date of inspection, 17th January, 1903, there being 3,000 tons of ore still on hand. Twenty teams were removing this at the rate of over one hundred tons per day, making use of the new 4-mile road to the company's railway siding.

The steam hoisting and drilling plant, north of the main open pit, was completed and operated last season, and a new office erected.

The employees number 53, of whom 12 are miners and the rest on the surface and hauling ore, all under foreman S. Smith.

Big Jim Property.

The iron outcroppings here were prospected by stripping for several weeks last summer and about 50 tons of ore raised, but all work since then has been suspended.

Dacre Mine.

Development commenced here last October, and all work so far has been confined to mining alone, without the construction of camp buildings. There appear to be two parallel veins of magnetite separated by 2½ feet of trap rock and dipping at about 45°, the upper band 3 feet wide and the lower one 5 feet. On the outcropping an open pit has been excavated 14 feet deep and 32 feet by 30 feet in area ; and down the under vein an incline shaft sunk to a total depth from the surface of 22 feet (or 8 feet below the pit floor). Several hundred tons of ore have been raised and some shipped out.

The employees number 20, of whom 8 are miners and 14 teamsters hauling ore, under foreman A. Woodhus.

MINERAL RANGE IRON MINING COMPANY.

During the past year nearly 3,000 tons of magnetite have been mined out of the Child's, or No. 1, and No. 3 mines, the latter newly opened up. The No. 4 property, also new, has been extensively prospected on the surface by stripping and a very fine show exposed, but no ore has yet been raised.

The most important work accomplished has been the construction of a graded road past the various properties, about 8 miles in length to L'Amable station on the Central Ontario railway, on which over $1,000 has been expended, with more to be laid out on its completion to the Childs or No. 1 mine, the farthest away. This road for the present will serve as a wagon road, but ultimately the company intend to construct a standard gauge railroad and equip it with electric motor cars capable of handling two ordinary freight cars loaded with ore, over the somewhat steep grades and sharp curves.

The disputed land on lots 4 and 5 in the sixth concession of Mayo township has been granted to the company, and this, together with their old and newly acquired properties, totals 2,300 acres located as follows, all in Hastings county : Lots 6 and 7 in the sixth concession of Dungannon township ; lots 1, 2, 3, 4, 5, 6 and 7 in the sixth concession, lots 2, 3, 4, and 5 in the seventh concession, lots 3, 4, 6, 10 and east half of 9 in the eighth concession, lots 11, 12 and south half of 10 in the ninth concession, and lots 8 and 9 in concession B, all in Mayo township.

Childs or No. 1 Mine.

Beyond the stripping of the magnetite body and the 1000 tons of ore raised last spring, noted in the last Report, no more mining has been done. There is still about 1000 tons of ore on the stock piles ready for shipment.

No. 3 Mine.

This lies in lot 3 in the sixth concession of Mayo, about 800 feet east of No. 2 mine. Since last spring two pits have been opened out 75 feet apart on the magnetite deposit, one 50 feet by 50 feet in plan by 15 feet deep and the other 20 feet by 20 feet in plan by 12 feet deep, both in good ore in one continuous deposit, and some 1800 tons magnetite raised, of

which 1,300 tons have already been shipped. Hoisting is done by a solidly guyed swinging arm derrick, bucket and horse whim. The other surface plant erected consists of boarding house, storehouse and stable.

The magnetite is fine grained and free of much intermixed rock matter, giving a high percentage of metallic iron with but traces of sulphur and phosphorus. It lies in a formation of diorite similar to that of the other magnetite bodies of the locality, and has been uncovered by stripping and test-pitting in and outside the workings for a total length of 300 feet by a width of 100 feet. By dip needle it has been found to underlie an area 800 feet in length by 300 feet width.

No. 4 Mine.

This property, also newly developed, is located on lots 4 and 5 in the sixth concession of Mayo, about ½ mile east of No. 3 mine. The work last spring was confined to stripping the body of magnetite, and test-pitting here and there, the former over an area of 50 feet by 80 feet. As a result of these explorations the body of magnetite has been visibly defined over an area of 50 feet by 160 feet: while the dip needle indicates a width of 100 feet and length of 800 feet.

ST. CHARLES MINE.

From the lessee and operator, Mr. Stephen Wellington, of Madoc, I learn that mining continued at the St. Charles until May last year. With the termination, however, of the supply contract with the smelter, operations were suspended and have remained so until the present time.

COE MINE.

Mining has continued in the same open pit during the past year and until January 1903, when, on account of the difficulties of open work in the winter, production was suspended until spring. Most of the hematite mined has been shipped to the smelters.

CALABOGIE MINE.

This magnetite property which has been intermittently developed for the past few years, was again re-opened last season with the production of between 800 and 900 tons of ore.

It is situated on lot 16 in the ninth concession of Bagot township, about two miles east of the village of Calabogie. The Hamilton Steel and Iron Company began development at a new point in January last under their lease from Mr. T. B. Caldwell, of Lanark, the owner, and continued until the expiry of the same in July, working with a small force of miners. A new inclined shaft was sunk beside the old workings to a depth of 86 feet on a vein of magnetite, and out of this the above quantity of ore was raised and shipped to the furnace at Hamilton. After this mining was continued by the owner, but confined to surface prospecting and stripping on the bands of magnetite at other outcroppings.

Copper Mines.

In the Parry Sound Copper district the scope of the mining industry has not been appreciably extended. The small amount of development at a few of the older properties and at some newly opened prospects has, however, kept interest alive, since new ore bodies have been exposed, particularly those at the McGown and Spider Lake properties which give promise of making pay ore.

Two small furnaces for making smelting tests of the ores of the locality were set up during the year; one, an electric furnace at the town of Parry Sound, and the other, a Vulcan water-jacketted blast furnace at the Wilcox mine. The former was removed before being completed to Sault Ste. Marie, in order to be sure of obtaining sufficient electric energy. The other ran for

several weeks on ore from the Wilcox mine, this being typical of most of the occurrences in the region containing, as it does, chalcopyrite in gneiss. The test proved, according to report of the operators, that the ore is practically self-fluxing, but contains in the raw state too little sulphides for a sufficiently bulky matte. Therefore the probability is that preliminary concentration will have to be resorted to. It is proposed by some of the older companies and by another recently formed to carry on active development this coming season as well in the Moon river section to the north as in the original field, and if these promises cometo anything a revival in the industry should result.

WILCOX MINE.

In December last a 5-ton Vulcan smelter was erected in the shaft house of this mine, making a test run of 10 days' duration for the purpose of ascertaining the suitability for direct smelting of the low grade ores of this and similar properties in the district. No further mining was attempted, and the works are now shut down again.

MCGOWN MINE.

This mine suspended development last September, but from the superintendent, Carl Anderson, I learn that all the work since last inspection was confined to the south crosscut at the bottom of the shaft, where at 70 feet in a 3-foot vein of bornite was struck. Drifts were run along this northeast 12 feet, and southwest 10 feet, and then the south crosscut continued in to 131 feet. The depth of the shaft remains unchanged. The milling machinery consisting of 10 stamps and the vanners was sold and taken from the mill building last fall. Mr. Anderson expects that as soon as more capital can be raised, which may be this spring, development will continue.

CONSOLIDATED COPPER COMPANY.

The mining lands owned by the above company cover lots 9, 10, 11, 12, 15, 16, 20 and 21 in the sixth concession of Cowper township, and lot 35 in the ninth concession of Foley, as well as two lots each in McDougall and Ferguson townships, all in Parry Sound district. The mine workings are on lot 10 in the ninth concession of Cowper and 7 miles southwest of Parry Sound on Spider Lake. The head office of the company is at the town of Parry Sound, with a branch office in the Manhattan Building, Duluth, Minn. Under mine superintendent John Moffat, the employees have averaged 11 since the commencement of operations in April 1902.

At the date of inspection, 30th January 1903, the mine was temporarily closed to allow the erection a shafthouse, head frame and mining machinery, and timbering the shaft. The main shaft is near the shore of Spider lake, in depth 103 feet, size 7 by 7 feet, and vertical; with a 13-foot collar. There are as yet no lateral extensions. The new mining plant consists of a small hoist and boiler with bucket. At 1,200 feet west of the main shaft another shaft was sunk 18 feet on the vein, but abandoned for the present in favor of the other which shows better ore. Still another was sunk by the previous owner to a depth of 30 feet, but no work has since been done in it.

The chalcopyrite occurs along mineralized bands striking northeast-southwest with a dip of 45° southeast through a formation of highly garnetiferous grey granite. Over a width of 18 feet in the main band or zone the copper sulphide together with a small amount of pyrites and pyrrhotite is finely disseminated at a low average per cent., and outside of this for several hundred feet away scattered grains may be found, but in too small quantity to be of any value. The bottom of the shaft is said to have cut through another band striking and dipping parallel to the one above and similar in quality. With the continuation of mining a crosscut will be driven southeast at the 100-foot level to explore both bands.

Nickel-Copper Mines.

In spite of the partial suspension of mining and smelting during last year at the Canadian Copper Company's works, the district's total production of nickel was greater than that of any former year on account of the steady operations at the mines and smelters of the Mond Nickel Company and of the Lake Superior Power Company, and on account of the increased rate of treatment in the first company's plant since the resumption last fall. At several other properties in the outlying districts development has been resumed or started up by the above concerns. Until, however, a railroad is built into the northern mineral ranges, either by the Canadian Pacific or the Algoma Central & Hudson Bay Railway company, the latter having gone so far as to locate the line, very little mining development or ore production can be expected. A number of nickel-copper and other properties have already advanced to that stage of development where it no longer pays to continue until treatment of the ore be made possible by cheap railway communication.

Canadian Copper Company's Mines and Works.

The period of slack operations which extended over the greater part of last year affected production all round, although at some of the workings to a lesser degree than at others. At the smelters varying numbers of furnaces remained in blast, on the whole a smaller number than usual, which reduced the output of matte slightly, while of all the mines the Creighton alone approached its former yearly tonnage, and some of the small workings closed down entirely. This suspension, however, has furnished the long needed opportunity to thoroughly define the various ore bodies, particularly those in the deeper and larger mines, and the most has been made of it both by diamond drilling and by exploratory mining at lower levels. The detailed knowledge obtained in this work has now made it possible to adopt more efficient as well as safer methods of mining than the old open cast plan, and also permits of blocking out ore bodies of known quantity and quality, from which any desired supply for future requirements will be available at once. Another very satisfactory result of this work has been the incidental proof given of the maintenance in size and richness of the ore in the hitherto unexplored lower and lateral extensions of the deposits. At the bottom level, or more than 900 feet down vertically, in the Copper Cliff mine the present ore chutes, while not so large as higher up, are still of good size and as rich in copper and nickel as ever. The chimney of ore in the No. 2 mine is seen to be gradually increasing in diameter from the 200-foot level down to the bottom drifts at 382 feet depth, its average diameter at the former depth being 120 feet. It maintains an even high grade throughout. The No. 3 and Creighton mines also look well, particularly the latter, where the extensive exploratory drilling for the past eight months has served to verify the former estimate of the size and richness of the deposit.

The entire property of the Canadian Copper Company has been sold to the International Nickel Company, the transfer resulting from negotiations which were under way at last inspection a year ago. The new owners have, however, re-organized the Canadian Copper Company and left the direct management of the business in its hands as before. Mr. A. P. Turner has been appointed president, and under him the old staff remains with Mr. James McArthur in charge of the metallurgical department, and Mr. John Lawson superintendent of all mining operations.

The number of employees was still small, but with the return to the former scale of ore production expected next spring the force will probably exceed considerably that at any previous time. At the date of inspection, January 1903, the employees numbered 1069, distributed as follows :—Smelters, 368 ; mines, 157 underground and 97 above ground ; roast heaps, 110 ; on surface and in shops, 296 ; office and laboratory, 41.

Metallurgical tests have been under way for some time looking to the replacement of the present method of first roasting and then smelting by one operation of pyritic smelting, and on the success of this depends the future layout of the works. With the adoption of pyritic furnaces a more compact plant would be possible, roasting would be done away with, and the much needed consolidation of the many scattered workings, to overcome the present excessive amount of handling, could be made.

The general surface plant outside of that at the mines has been added to by the erection of a sampling house, near the west smelter, where large samples of several hundred pounds weight of ore or other material for analysis are reduced to the proper quantity by treatment in crushers, automatic sampling machines, pulverizer, etc. Adjoining this is the new chemical laboratory almost completed, its equipment including the most modern apparatus for both ordinary and research work.

The now completed electric light station in the lower part of the town contains two generators, each with its high speed engine. In the same locality a store house for oils has been built, 35 feet by 45 feet in plan, of brick, and safely removed from the other buildings. The new general office is now occupied.

Another needed and much appreciated structure is the hospital which has just been erected in the town by the new company. Besides presenting a beautiful exterior, ornamental enough for any locality, the building is internally a model of neat finish and complete equipment. There are cots for 20 patients with apartments for the resident staff of doctors and nurses.

Copper Cliff Mine.

The work, under way at last inspection of taking out a remaining block of ore from the old open stope at the 4th level, has been completed and now this entire excavation from the 1st down to the 13th level is abandoned, and most of the entrances thereto boarded up. The east skip-road down the old shaft, which was last year temporarily put in shape from the junction of the old and new shafts, in order to hoist this ore, has been restored to the new shaft, the old shaft serving now merely as a pump way. Since that time all mining has been confined to the bottom or 13th and 14th levels from which the ore production for some time back has amounted to about 1000 tons per month, the ore averaging approximately 13 per cent. copper and nickel, in the proportions of 10 to 11 per cent. copper to 2 to 2.5 per cent. nickel.

The main shaft has not been sunk below the sump on the 13th level, the new 14th level opening out from the bottom of a winze sunk from one of the 13th level drifts. Thirteenth level: from the old winze chamber, last year at the end, or 144 feet in the west drift, an extension has been run 130 feet southeast inclining up steeply from about two-thirds way in as an open stope. It connects at the top with the bottom of a 60-foot winze from the 12th level. The stope measures 40 feet in height by 9 feet width with vertical walls and is being carried still further in.

The entrance to the old main stope which terminates at this level has been boarded up. The northwest drift continues in to 135 feet, with at 100 feet a 20-foot crosscut west and a veritical winze 85 feet deep to the new 14th level, a small air hoist installed at this station operating the bucket between the two. Fourteenth level, depth 1052 feet: the connecting winze is timbered for a hoistway and ladderway, and from the bottom drifts run east 120 feet and west 50 feet, the latter stoped overhead 30 feet high nearly from end to end, 6 feet to 10 feet wide, and vertical.

The main shaft is kept in good repair from top to bottom; the pumps are stationed on the 13th, 12th, 10th and 7th levels; and good air prevails throughout the working places.

On the surface the power plant has been increased by the addition of a fourth 100-h. p. boiler. The quartz and limestone crushing plant formerly located in the sheds a hundred feet

or so to the rear of the rock house has been moved up into this latter building, the crusher being placed alongside the original large crusher for the Copper Cliff rock, and now both are run by the same engine. By means of another hoist engine set higher up in the building, the rock is raised by skip and trestle road from the railway tracks up to the crusher. From here it drops into separate bins and later is shipped in the cars to the smelters for use as flux

No. 2 Mine.

Stoping continued in the open pit until the end of January 1903, enlarging its area along the third level floor at 217 feet depth, until now there remains only a small block of ore in front of the station of the old shaft, and with the extraction of this before the frost leaves the walls, the open pit will be abandoned. At the same time development of underground levels has advanced sufficiently to permit carrying on all mining in future under a solid roof, thereby insuring greater safety to the men and avoiding the interruptions attending exposure to the changeable weather. The plan consists in opening out levels at regular intervals beneath the pit floor and on each of these crosscutting the ore body by series of drifts ; after first breaking away over-hand to an arched roof all but the supporting pillars, which are to project from either side, the succeeding level floors will be systematically stoped away underhand to the level below and the rock hoisted out of the new shaft. The old shaft has been abandoned as a hoistway and manway.

New shaft, depth 390 feet (vertical); from the turn at the first level it descends almost vertically, in size 8 by 18 feet, and timbered down to the 4th level with double skip road and ladderway carefully and solidly set. Below the 4th level hoisting is done by auxiliary air engine and bucket. Third level ; out of the old shaft station on the pit floor a winze sunk vertically 76 feet to the 4th level ; at 26 feet depth in this a subsidiary level opened with a north drift 100 feet long crosscutting the ore body ; the new shaft is connected with the old shaft and open pit at this level by a 70-foot north drift. Fourth level, depth 293 feet ; north drift, 60 feet, connecting at face with winze from 3rd level. Fifth level, depth 374 feet ; north drift, 55 feet.

The incline of the trestle skip road connecting the shaft with the rock house, a distance of about 200 feet, has been increased by raising the upper end 3 feet to cause the skip to return more rapidly. The old battery of boilers in the power house has been replaced by four new ones fitted with mechanical underfeed stokers, and preparations are now under way to install four more. Three of these will furnish all necessary steam for the mine workings, the remaining five to form part of the smelter power plant.

No. 2 Mine extensions : A limited amount of further development was accomplished in the first and second extension mines, and at the same time a third opened out a short distance north of the other two, about 50 feet deep and 25 feet by 25 feet in plan. In the spring however work ceased in all three. If present intentions mature their continued operation as open pits will depend on the results of diamond drill tests to establish whatever connection may exist between them and the No. 2 ore deposit, and should ore be found to continue from the latter north into the others, it will most likely be preferable to work them all from the No. 2 mine shaft.

No. 3 Mine.

Since August of last year, when mining in the open pits ceased, all work has been confined to opening up lower levels below the pit floors, the small amount of ore produced from this development constituting the total output during this period. Extensive diamond drilling has defined the ore bodies sufficiently to allow of future ore extraction by a systematic underground plan applicable to all conditions, to be conducted under a roof formed by the

present floors of the pits. The new method is one of filling. Only ore will be hoisted, the waste remaining in the stopes to be added to from the rock dumps on the surface in order to complete the fill.

Main shaft, depth about 150 feet (vertical), now being sunk from the 2nd to the 3rd level ; first level or pit floor ; the last work here consisted in carrying back the pit faces from the floor level, leaving them nearly vertical all around, without however appreciably enlarging the area at the surface. Second level, depth 100 feet ; opened out from the shaft, which is timbered down to this point with double skip road and ladderway ; northeast drift 100 feet, with at 25 feet in a cross drift northwest 50 feet as an inclined upraise holding through into the open pit floor, and another southeast 60 feet and then south 75 feet ; at 75 feet in the northeast drift an 85-foot vertical winze sunk, 6 by 6 feet in size, and from the bottom the 3rd level opened out. Third level, depth 185 feet (vertical) ; from the foot of the winze the ore body has been undermined by a series of connected drifts totalling in length 517 feet, and the foot of the shaft upraised on 20 feet at 25 feet southeast of the winze. Connection was being made between the 2nd and 3rd levels by this shaft. On the surface the large balanced double-drum hoist has been replaced by a smaller one from the Stobie mine on which the drums act singly ; and for the hoist cables, an intermediate set of sheaves has been placed at the foot of the rock house.

Nos. 4 and 5 Mines.

These two properties have remained idle since the general suspension of operations last spring, and were therefore not inspected. The open pits are reported not to have been appreciably enlarged over the measurements of a year ago.

Stobie Mine.

The characteristic of the Stobie ore is its high iron content, but this quality of ore is not in demand at present at the smelters so that idleness still prevails at this mine, complete now since pumping also has been stopped.

Creighton Mine.

With the exception of two months during last summer production has continued steadily at the rate of about 550 tons a day. The employees, including those running the diamond drills, total 140 under mine captain F. Rodda.

Ore is raised still from the one open pit and off the same floor level (62 feet deep), its area having now increased to 150 feet by 200 feet (from 80 feet by 135 feet a year ago). The walls are steep, but kept in safe condition and on them the six air-drill gangs are perched at different points breaking out the ore in immense masses. Out of the southwest corner a vertical winze has been sunk 80 feet, 6 by 8 feet in size. From a crosscut from the bottom of this the main shaft will be upraised on, this method of development being adopted to avoid interference with ore production above.

Two diamond drills have been prospecting the deposit since June last and a third since December, and as a result a great number of holes have been sunk, chiefly on the north, east and west sides, since the dip, though slight, is to the north and the strike, if such it may be called, runs about east and west. The work has not only confirmed last year's estimate of the extensive surface area of this deposit, but has shown the ore body to be continuous in depth, both in size and in the clean nature of the sulphides, the occasional intrusions of rock being sharply separated as barren bands. The nickel-copper contents average between 6.5 per cent. and 7 per cent., the proportion of copper to nickel being approximately as 1 : 2.5.

At the power house the three boilers have been fitted with mechanical underfeed stokers. The smaller of the two original air-compressors has been replaced by another straight-line

Ingersoll compressor of double the capacity (6 drills) : and the new hoist engine having to be returned for reconstruction is in the meantime being replaced by the No. 3 mine hoist, similar both in size and make

Quartz Mine.

About one mile south of Copper Cliff and on the shores of Kelly lake at the top of the next range of hills a large deposit of clean massive quartz is being quarried for use as flux in the smelters. The rock is lowered in counter-balanced cars on a double track surface tram-road one-quarter mile long built entirely on trestles and at an incline of about 80 feet. From the ore pocket at the foot it is hauled in sleighs or wagons across the flat to the crushing plant at the Copper Cliff rock house. The daily output amounts to about 100 tons, but may vary considerably depending on requirements.

Smelters and Roast Heaps.

At the east smelter several furnaces have been kept in blast since June last, working on the incompletely roasted portions of the ore in the roast-heaps. The low grade matte formed is spilled, re-roasted and then smelted again at the west smelter plant. Operations at the old smelter were to be discontinued for some time and probably for good. Most of the furnaces at the west smelter continued in blast during the year, though in the early part of 1902 production slacked off. At the beginning of 1903, however, the rate of output from both plants exceeded that of any previous period.

Two of the furnaces have been altered to withstand a hot blast at increased pressure for the purpose of making pyritic smelting tests of the raw ore. The results of the initial runs seem to indicate that the new process will allow of successful adoption with these ores, and if so a great saving will be effected in fuel consumption and in expense of roasting. The hot blast is generated in a large specially constructed brick stove, and for operation with this a specially designed brick furnace is being built.

Two slag elevators have been erected in front of the furnace building for the disposal of all slag not used for making ground about the works. The blower plant has reached the full capacity of the building by the addition of the sixth complete blower unit of the Connersville type of machine.

Of the three roast yards only Nos. 1 and 3 continue in full swing. No. 2 is to be abandoned as soon as the present heaps burn out. Its location is disagreeably near the town and works. Dan McKinnon now has charge as contractor of all the roasting operations At No. 1 yard the heaps number about 25, and at No. 3 or the west yard about 40, of which half are composed of spilled matte. Dangerous methods of thawing the dynamite are still in practice, which necessitated a repetition of last year's instructions.

Ontario Smelting Works.

The Ontario Smelting Works have been sold out entirely to the Canadian Copper Company and are now operated under the direction of that company's staff at Copper Cliff. The work of raising the grade of the Canadian Copper Company's matte prior to shipment to New Jersey for refining has progressed steadily at this smelter during the past year. The management of the works was placed in the hands of Mr. H. J. B. Baird on the resignation of Mr. T. W. Stiles, and under him the number of employees has varied from 175 to 200, with an addition at the present time to this number of about 50 on account of the new construction work.

The capacity of the plant hitherto has been limited by the calciners to about half the matte output of the adjoining smelters of the Canadian Copper Company, which is 150 tons per day, so that the other half has had to be enriched as well as refined in the United States. In order to be able to handle everything here alterations and additions to the plant were begun several months ago, to be completed and the new plant put in operation by April next. The two

original Brown calciners have been lengthened from their former measurement of 140 feet to 206 feet and 210 feet respectively and the building enlarged to fit. For the third or new calciner which is 200 feet in length and nearly completed, a new structure has been erected. This will give double the roasting capacity for the powdered matte. By incorporating a briquetting machine for the roasted fines, one of the present two furnaces will be able to take care of the full 150 tons a day. The foundations for this briquetting plant are now in the course of construction. A third boiler of 120-h.p. has been installed alongside the other.

GERTRUDE MINE.

Considerable activity has marked the progress of this mine during the past year, largely on account of the completion and continuous operation of the smelter since early last spring; thus necessitating the raising of much more ore than formerly, which in turn required additional power at the old plants and the erection of new ones. Three of the four mines have been reopened on fair-sized bodies of ore, and although one of these has suspended work, the other two produce about 200 tons a day, of which 180 go to the roast heaps at the smelter grounds, the remaining 20 from which the copper pyrites has been cobbed as clean as possible being shipped to the Lake Superior Power Company's sulphite works at Sault Ste. Marie, Ont. There, after the extraction of the sulphur, the sweet-roasted ore is to be smelted in the ferro-nickel plant for the direct production of nickel steel.

No. 1 shaft: The former depth of 120 feet is not increased, but the shaft has been widened out to a size of 50 feet by 60 feet, for a depth of 50 feet, partly as a stope extending under a heavy arch on the west side; out of the other side, but at only 35 feet depth a trench runs 75 feet east narrowing down towards the far end from 50 feet to 20 feet. From the south side of this a crosscut explores south 60 feet; and under most of the north wall a low stope has been cut out, apparently along a branch of the ore body. Several of the faces of this working are covered with shattered or fractured rocks which will require careful scaling from day to day to avoid accident to the men working below. The system of raising the ore by means of a heavy swinging arm derrick is somewhat awkward, and not infrequently attended with danger to the miners. It might advantageously be replaced by some more easily controlled method, such as a skip road. The surface plant comprises a double drum hoist and small boiler installed at one end of a temporary shed: the other end of the sheds forms the dry room.

No. 2 shaft: Since re-opening here the entire work has consisted in stoping, and now from the south drifts on the 2nd or 71-foot level underground one large stope extends up to the surface on a steep rise to the south, in size 80 feet long by 25 feet wide by 20 to 40 feet high to the arched roof left over the north portion. The ore is all hoisted out of the old shaft by the cage, for which a new head frame and ore pocket combined have been erected. The new hoist house stands 75 feet to the east and contains a 40-h.p. return tubular boiler, and double cylinder, single 3-foot drum hoist engine. The ore from this bin is transported by rail to the rock house at No. 4 shaft where it is crushed and sorted.

No. 3 shaft remains closed.

No. 4 shaft: Development was continued on the one level for a period of three months during last spring, several hundred tons of ore being raised. The depth of the shaft remains the same First level, depth 45 feet; west drift 100 feet with the first 50 feet stoped out 14 feet wide and up to a roof gradually rising to the surface at the face; east drift 60 feet, with a stope extending in 16 feet, in size 16 by 16 feet.

The ore body in No. 1 trends east and west heading directly for that in No. 4 shaft 750 feet west; but explorations have not yet demonstrated whether there is any connection between the two. In No. 1 large masses of clean ore, together with other mixed areas, cover the

working faces of the stope, similar to the deposit in No. 2 mine, and both ore bodies give promise of continuity beyond the present levels. Pyrrhotite forms by far the most abundant sulphide, the chalcopyrite content being only in scattered pockets and stringers.

At the rock house the power plant has been increased by a second 60-h.p boiler; and shortly the present double, 12 by 15 inch jaw crusher will be replaced by a single 15 by 30 inch Blake of larger capacity now on hand. A number of new dwellings have been built about the roperty both by the company and by private parties.

It was necessary to give instructions for the immediate employment of safe methods of storing and thawing the dynamite, the present practice at both the working mines being dangerous.

The smelter reached completion early in June 1902, and has since run steadily, putting through from 100 to 160 tons of roasted ore per day. The matte has been allowed to accumulate until now about 1,700 tons are on hand. This will be shipped later to the converter plant now in course of erection at Sault Ste. Marie, Ont., or elsewhere to be refined. The nickel-copper content in this matte averages 29 per cent., the proportion of nickel to copper being as 2 is to 1.

The plant consists of one water-jacketted furnace with forehearths, a 50-h p. boiler, a Connersville blower with engine, dynamo and engine, ore and coke bins, a slag elevator, and other accessories. It is the company's intention to add two more Herreshoff furnaces each of one-third greater capacity than the present one and to supplement them with all other necessary additions. As parts of the new plant have already arrived, probably the increases will be effected during the coming summer.

Since November last the roast heaps have been gradually diminishing in numbers because of the temporary cessation of shipments of ore from the Elsie mine. There are still seven with more of Gertrude ore building.

Under superintendent Thos. Travers are mine foreman Thos. Williams and smelter foreman Alex. McPhee. At date of inspection, 2nd February 1903, there were 140 employees, about the usual number, on the roll.

ELSIE MINE.

In November last all mining work was suspended to allow of shifting the surface plant from the north or hanging-wall side of the open pit to the more solid south or foot-wall side, and of erecting more elaborate works. Later when prevented by the frost from setting the foundations, all hands were laid off until April. The erection of the new building will then be rushed in order to resume ore production as soon as possible. The open pit with its flat incline of about 30° north was gradually undermining the ground now occupied by the power and other houses and the shaft head-frame, forcing the vacation of that site. The enlarged plant will consist largely of new machinery of considerably greater capacity, and will include a rock house for crushing and sorting prior to shipment to the Gertrude roast yards and smelter.

A large gang of wood-cutters were, at time of inspection, out in the bush cutting and bringing in the full supply for the coming year.

VICTORIA MINE.

After a year's steady production at the Victoria mine and reduction in the smelter, and the development of some of the company's other properties, all activity ceased in December 1902, owing to a close-down at the Mond nickel refinery in Wales where the Victoria matte is refined.

The management remains unchanged. The number of employees has been reduced to 77, outside of some 200 axe-men in the bush cutting and drawing out cordwood. To both smelter and mine a very large stock of this fuel has already been brought and piled.

The mining done by the company to the date of inspection, 10th February 1903, after the lapse of a year, is as follows :

Main shaft : depth 557 feet (185 feet increase).

First level : the west open-cast enlarged to a plan of 50 feet by 100 feet on the first level floor, and to 70 feet by 125 feet at surface, narrowing down to a width of 6 feet for the last 40 feet on the east or shaft side ; the east open-cast enlarged to a plan of 50 feet by 80 feet from surface down to first level, but below this to the floor on the second level remaining about the same.

Second level : the west stope considerably enlarged, now 45 feet in width, while the rising drift connecting the top of stope with the floor of the west open-cast has now a cross-section 25 feet square.

Third level : out of the top of the old west stope a 25-foot upraise driven connecting with the second level, and from the bottom another large branch stope opened out 110 feet in length on a 45° rise north, in size 30 feet by 35 at bottom, and 10 feet by 15 feet at top ; in the east stope the numerous branch drifts have now disappeared into one unbroken opening which curves back west for 90 feet on a 50-foot rise up over the level drift, 20 feet by 30 feet in cross section, and runs up east 65 feet at the same rise, 15-feet by 25 feet in size, the roof between the two arms descending to within 40 feet of the level.

Fourth level : the west stope carried 10 feet higher to 60 feet in all, maintaining about the same size of 30 feet by 30 feet, and ending in a 10 by 15-foot upraise to the third level ; east drift, 270 feet (79 feet increase), with at 65 feet in a branch drift 100 feet northeast, and at the junction a small overhead stope ; at 210 feet in, the east stope started, 50 feet in length by 20 feet high and 20 feet wide.

Fifth level; west drift 65 feet (60 feet increase) with a short stope in the middle of drift 6 feet high by 17 feet wide; east drift 223 feet (203 feet increase.)

Sixth level; (new), depth 454 feet, with shaft station on north side; east drift 133 feet.

Seventh level; (new), depth 540 feet, with shaft station on north side; east drift 27 feet.

The timbering of the two cage-ways and ladder-way compartments continues down to the seventh level. The mine pumps are located in the shaft sump, and on the seventh and fourth levels. An auxiliary air hoist set up in the seventh level station operates the bucket below this level in the continuation of the shaft. Two other outlets besides the main shaft exist from the underground workings by way of the stopes and open casts ; from the fourth level on the west side and from the second on the east side.

A large amount of diamond drilling has been carried on up to the present time from the underground levels, viz., from the face of the third level west; from the floor at the face of the fourth level east; from the floor of the west stope fifth level; from the floor of the seventh level station. By these holes the west ore body has been defined below the fifth level, where last stoped on, to a vertical depth from the surface of 650 feet, and already has been partially blocked out on the lower levels, preparatory to stoping. The east ore body has been defined only down to the fifth level by the holes from the fourth level, and by the east drift on the fifth which has just tapped it.

In the old stopes, particularly below the second level, there yet remains considerable ore in place, while in the bottom levels the ore has hardly been touched. A large quantity of broken ore lies in the different stopes ready for removal when required.

No. 3 shaft situated about one-half mile northwest of the main shaft was further developed last summer. It has attained a depth of 102 feet, with the first level just commenced, but the second, at 96 feet depth, driven a total length of 220 feet on both sides of the shaft.

No. 4 shaft, about 600 feet east of the main shaft, was opened out during the past year, and a hoist and shaft house erected in the latter, a small hoisting plant similar to that of No. 3

mine being set up. The compressed air for drilling was taken from the power house at the main workings. The shaft was sunk 201 feet, vertical. First level 47 feet deep; drifting northeast 12 feet, and south 60 feet. Second level, depth 129 feet; drifting northeast 25 feet, and south 50 feet. These two drifts branch out from a shaft chamber 20 feet by 35 feet in plan.

Both these shafts were reopened rather for the purpose of exploiting other nickeliferous deposits than with any idea of immediate stoping for the production of more ore.

Two other mines were operated during the year by The Mond Nickel Company, under the management of the Victoria mine staff, all the ore produced being shipped at once to the Victoria mines smelter to be treated. These mines are the North Star on part of lot 9 in the second concession, and part of lot 9 in the third concession of Snider township, situated a mile northeast of the Creighton mine ; and the Little Stobie on the north half of lot 6 in the first concession of Blezard township, between Stobie and Blezard mines. From the North Star 4,724 tons of ore were extracted, and from the Little Stobie 1,584 tons.

At the Victoria mine the condenser is now in operation in conjunction with the hoists and engines of the power house and, as part of that plant, an 8 by 5 by 10 duplex Snow pump has been installed.

Recommendations given at the last inspection for the safe handling of explosives have been complied with.

The smelter continued in steady operation until the latter part of December. Since then some alterations have been going forward on one of the two furnaces for the purpose of making pyritic smelting tests on the raw ore, and the necessary hot blast stove is now about completed. After some demonstration runs on this method regular smelting will probably continue.

Mica Mines.

The number of active mines in the mica field of eastern Ontario remains about the same as at this time a year ago, although some of those then in operation have again closed down and their places have been taken by others. Of the new properties several are prospects, and others are old mines which have lain idle for a period. As a result of the increased scale of production at a few of the largest of the mines, the year's output is considerably greater than ever before, as will be seen by a comparison of the following figures. In 1901 the production amounted to 854,000 lb. valued at $39,780, and in 1902 to 1,998,000 lb. valued at $102 500.

A gradual change has come about during the past two or three years in the demand by the trade for the large and small sizes of mica respectively, induced by improvements in the methods of utilizing the material in electric insulation. Now, instead of the larger sizes (3 by 5, 4 by 6, 5 by 7-inch and up) alone supplying the needs and thereby bringing fancy prices, their use has diminished to such an extent, with a corresponding increase in the demand and price for the small sizes (1 by 3, 2 by 3 and 2 by 4-inch), that at many of the large mines all the product is ruthlessly cut down to the latter dimensions. This, while it may appear to strip the smaller mines of their main source of profit does not really do so, since now practically all of the mica may be marketed, and at considerably better figures for the small sizes than ever prevailed before ; besides which there will remain much less waste than when trimming for the larger sizes only. The probability is that the prices for these smaller sizes will never be less than at present, but on the other hand that they will increase a little until some uniform figure is established for a unit of size on the run-of-mine mica, to vary more with the quality than the size.

There is a movement on foot now to even utilize the 1 by 2 inch grade, up to the present considered scrap, and if this proves profitable, as there appears every reason to believe it will, those who have stored away their trimmings against such an event will reap a rich reward.

The advance in the art of mica insulation in electrical apparatus, which has caused this change in the market requirements, is due to the successful and practically universal adaptation of the manufactured mica board, also called micanite or other similar name. This may be sawed, bent or moulded into any desired shape so readily that it has almost entirely replaced the natural mica crystal. One of its chief advantages over the latter is its inability to split up or cleave.

Micanite or mica board is made by building up layer after layer of the thinnest mica flakes, with a coating of a special cement or adhesive containing shellac between the layers, and then subjecting the whole to hydraulic pressure. The resultant hard board is then planed and sawn up as desired. The boards are made in sizes usually about 3 by 4 feet square by any thickness up to an inch or so.

The mica market is to-day in a better—steadier—condition than it has ever been before. The demand for any and all sizes and for even the most inferior grades is strong enough to absorb the miners' output at once and to leave most of the trimming shops short of their usual excess stock.

RAYMOND MINE.

This new property, though now closed down, produced a considerable tonnage of good amber mica during the period of operation from July to November 1902. It covers the south part of lot 22, in the eleventh concession of Loughboro township, Frontenac county, and is situated about 2 miles northeast of Perth Road. The owners are Messrs. Stevens, Franklin and Kent Bros., of Kingston. Development may be resumed this season.

BEAR LAKE MINE.

Mining here continued for about three months after last inspection [3] with the same small force and the production of nearly two tons of thumb-trimmed mica. Again in the fall another month's prospecting work was spent over the surface, but no quantity of mica was raised. Production will probably start again this season.

LACEY MINE.

Considerable progress has been made in the steady development of this property both above and below ground during the past year. The number of employees has averaged 48, and at date of inspection was 56, over double that of a year ago, the management remaining the same.

With the opening of new and lower levels underground the mica body has been found gradually expanding downwards as from the apex of a pyramid, and what is of as much importance the quality and quantity of the mica is keeping pace. Instead of generally small and scattered crystals through the matrix, as occurs in most other mines of the region, the mica in the Lacey workings is almost massive, the diameter of the crystals being generally more than a foot, and as great as 7 feet with a thickness of equal dimensions, from which immense cuts of clear mica are taken. There are also of course numerous small mica crystals but these confine themselves pretty well to the more barren portions of the deposit. All the mica is of first-class quality.

Now, instead of partially trimming the mica at the mine as formerly, the trimming shop has been done away with, as also the mica storehouse, and all mica simply rough-culled on the shafthouse floor and immediately barrelled and hauled to Sydenham for shipment to the company's new trimming shops at Ottawa (replacing those at Sydenham).

[3] Bur. Mines, Vol. XI, pp. 288-9

The main shaft has reached a depth of 135 feet (25 feet increase), the still advancing bottom reduced in size to 12 by 20 feet, later to be enlarged to about 20 feet by 20 feet. It has maintained the same incline of 84° northeast. First level, depth 60 feet ; the former depth of 45 feet has since been increased by taking out of the old floor a bench or underhand stope 15 feet deep, from the main shaft back to the air shaft. The one drift southeast is on the new level, in length 255 feet, made up of several sharp turns. At 85 feet depth in shaft a sub-level runs 30 feet northwest. At 95 feet depth another runs southeasterly 42 feet. Second level, depth 117 feet ; southeast drift 30 feet, with branches east 75 feet and south 50 feet ; northwest drift, 45 feet. Most of these drifts are wide and high, serving as well for the stopes from which the mica is taken Occasional pillars are left supporting the walls and roofs along the irregular drifts. Solidly placed stulls and lagging protect the first level between the two shafts from loose rocks in the soft roof. Down the main shaft complete stagings are placed at the levels and sub-levels, these being pierced by the skid road for the bucket and by the ladderway. For the lower levels the ladderway is transferred to this shaft, descending down the air shaft only to the first level. Ventilation is satisfactory, and one pump is easily sufficient to keep down the small amount of water. Sinking in the shaft continues.

Other mining progressed over the surface of the property in an exploratory way, two shafts being sunk, one at 200 feet south of the main shaft to a depth of 40 feet on the incline, and the other at a greater distance east to a depth of 30 feet also on the incline.

On the erection of the 35-foot head frame over the shaft and beside the power house these two buildings were then thrown into one and the new plant of boiler and hoist engine set in operation. Several new buildings, including a boarding house, have been built, and a dry room made out of the old mica shop. The practices followed in the storing and handling of the explosives were not satisfactory, and advice for safe methods was given.

M'CLATCHEY MINE.

The recent owners, Messrs McClatchey and Hayden of Belleville, sold their entire interest in this property last July to J. W. Trousdale of Sydenham, the present operator. Development continued fairly steadily during the year and for the latter half under the new management, with foreman E. K. Kellar and a force of 7 miners, the output for this period amounting to 15 tons rough mica.

The shaft has been sunk to a depth of 100 feet, gradually widening out to a cross section at the bottom of 8 feet by 30 feet and increasing in incline from 80° to vertical. The rock is raised by derrick, bucket and horse whim. A portion of the trimming shop has been converted into living quarters, and another blacksmith shop has been built. The unsafe practices which prevailed in the handling of the explosives were prohibited and proper methods advised, and also several changes recommended in the underground workings.

STONESS MINE.

Latterly production at this mine has fallen off very appreciably on account of the enforced curtailment of sinking in the main shaft, due to lack of fuel for power to pump out water and operate the drills. The shaft reached a depth of 425 feet (71 feet increase) maintaining about the same size of 20 feet by 30 feet and incline of 25° north, but has now been allowed to fill up to the 225-foot level. At 135 feet depth a branch drift runs northeast 30 feet where the remainder of a show of mica was taken out. At 201 feet depth, the southeast drift turned north parallel to the shaft and inclining up, in length 30 feet, in height 25 feet, and width 8 feet, leaving a wall a few feet thick between it and the main shaft. This drift followed and

removed the mica from a small vein or chute parallel to the large body. From the opposite side of the shaft another crosscut was being driven west, in length to date of inspection 27 feet, prospecting a body of calcite for a show of mica.

According to the manager, the mica still holds good in the bottom of the shaft, though in less quantity than formerly, the vein or chute measuring but 7 feet in width by 20 feet in height. All down the shaft workings the walls and faces are being systematically robbed of any remaining crystals of mica. As a result the timbers have been damaged at several places and will require replacing or bracing.

Several other shafts in sight of the Stoness workings have been further developed during the year. One at 100 feet west was sunk 30 feet inclining north. Another at 1,000 feet west is also 30 feet deep inclining north. The pit at 600 feet north was continued down as a shaft to 35 feet depth inclining north. All of these have been shut down for the winter months. On lot 5 in the thirteenth concession, and at one half mile northwest of the Stoness mine two other pits are now in operation after a period of idleness of two years. The two workings lie 150 feet apart, the northwest one 12 feet deep by 8 by 10 feet in plan with a 25-foot drift east from the bottom ; and the southeast one 20 feet deep by 8 feet wide by 18 feet long. To the north of this 25 feet is another old pit of about the same size and depth, not yet re-opened. The rock exposed in the pits is mainly pyroxene bounded by a formation of granite, with but a poor show as yet of mica, the development being undertaken rather in the hope that the satisfactory indications will expose more mica later. A boiler of 12-h. p. furnishes steam for the one machine drill. The only other house is the mica shop.

At the Stoness camp a new oil house has been built in a satisfactory location following instructions given at the last inspection. The force numbers 20, under foreman Jas. Jones.

PIKE LAKE MINE.

The lease of this mine has been transferred to Messrs. D. Farry, of Ottawa, and P. C. McParland of Micaville, who re-opened the workings about the first of November, 1902. The force of three men has since then enlarged some of the old pits, both by a little sinking in some and drifting back in the walls of others, as a result of which some five tons of rough white mica have been obtained. The mica deposits in these pits have not altered appreciably under the new development, but continue to carry fairly uniform amounts of mica, and probably the other openings if further prospected would produce an equally good grade and quantity. At the best, however, the clear cuts of mica seldom exceed a 2 by 3 inch size. Instructions were left for much needed improvements in the present reckless methods of handling the explosives.

M'LAREN'S MICA MINE.

Operations continued here steadily until last March, by which time the open trench (the only working) had been lengthened a few feet at both ends over the former length of 80 feet and deepened 5 feet to about 13 feet in all, several tons more of finished mica being obtained and also a quantity of apatite, or phosphate, as it is usually called. The mica deposit had however by this time pinched out at both ends, and dipped south past beyond the property's south boundary line to which it ran parallel, so that though the show of mica in the bottom of the trench remains good the mine has been abandoned and all surface plant removed. This information was given me by Mr. John Adams, mica dealer, Perth.

MARTHA MINE.

The Mica Manufacturing Company re-opened this mine last spring and during the two succeeding months produced about 35 tons rough mica, after which they again shut down.

Now, however, Mr. T. T. Smith, the foreman of former operations, has secured a lease of the mine from the company, and again started the pumps unwatering the pits, with the intention of continuing development and production immediately, his force to number about twelve.

GIBSON'S MINE.

This property was transferred to Mr L. J. Gemmell of Perth early last year, and for about four months actively developed by him with the production of a few tons of trimmed mica. According to Mr. Gemmell, the mica body gradually pinched out, and as no indications could be found pointing to the existence there of other adjoining or connected deposits the mine has been abandoned. The mica was not of the best quality, being of a dark color and fissured, and giving only small cuts from even the largest crystals.

BYRNE'S MINE.

The former owner, Mr. Patrick Byrne, sold this property last year to the General Electric Company, of Schenectady, N.Y., but as yet no resumption of development and production has taken place.

HANLAN MINE.

This mine was transferred last May by Webster and Company to the General Electric Company of Schenectady, N.Y., and since September active development has marked the progress of operations under the new management. Mines superintendent G. W. McNaughton is in charge, with foreman Samuel Cordick and a force of 28 men.

The main and only working consists of one open stope from the surface down, following along the strike and dip of the vein. It now measures 60 feet deep, by 50 feet long at surface and 75 feet at bottom, by 8 feet to 10 feet wide on an 80° dip east, the strike of the vein—or length of the stope—running north and south. In the future development a shaft will be sunk out of the south end to a depth of about 12 feet or two stope benches in advance of the floor level, and the rock stoped away underhand to it: and from the north drift, kept a little ahead of the north face of the main stope, the roof will be carried up to the surface with the advance north of the whole face. A solid set of stulls and lagging covers the stope at the surface, and below this three other similar lines of timbers run from end to end of the working as a support to the somewhat shattered hanging wall and a protection to the miners. Through these one pumpway, two skid roads for the bucket, and one ladderway descend, the bucket being dropped down either road by the swinging arm derrick.

At 50 feet north of the main working another pit was sunk three years ago, 20 feet deep by 20 by 20 feet in plan, producing good mica to the bottom; and for 50 feet or so farther north, to the northern boundary line of the location, other mica shows outcrop, which when taken together would indicate that but one vein extends through them all. For a distance of 200 feet south of the main mine the vein disappears beneath a swamp, but good mica crystals cover the south face of the underground stope pointing to the vein's continuation in that direction also. All the mica has been removed from the vein from wall to wall as the work proceeded. Latterly a production of from 5 to 6 barrels, or from 1,500 to 1,800 pounds per day of mica in the rough state has been attained. A large body of phosphate was struck recently in the hanging wall above the floor of the stope and this will be raised separately.

The surface plant remains about the same except for the new store house 250 feet east of the mine buildings. A proper dynamite magazine as well as a separate shed for thawing this explosive have not yet been built. Immediate attention to this requirement was advised.

Adjoining the Hanlan property to the south at about one-third mile distant, the old Captain Adams property on lot 12 in the sixth concession of N. Burgess township lay idle for a number of years, until last October the General Electric Company took hold of it

under lease and resumed development. Since then the old pit has been enlarged to 35 feet deep by 8 to 10 feet wide and by 15 to 20 feet long, with an 8-foot drift out of the north end.

From an examination of this working it appears that throughout a small shattered area of the formation of gray syenite, an eruptive tongue of green pyroxene has been intruded, very indefinite and broken in outline ; and that through both of these interwoven rocks amber mica occurs in fair-sized clear crystals, but as yet not in large quantity.

Hoisting of the rock is done by bucket, derrick and horse whim, and the mining by a force of four.

Other development work was undertaken last fall in a number of pits and trenches on the Hanlan property, but at about a quarter mile southeast of the main workings, and this was suspended again only a short time ago. Pits were sunk 15 feet in one place, and in several others from 5 to 10 feet, for 300 feet along the same line of strike, and all showed up mica, which would point to the probability of one vein running through them all. Small quantities of good amber crystals were raised.

NOBLE'S BAY MINE.

A syndicate composed of Perth gentlemen and represented by Mr. J. M. Rogers has acquired a parcel of lands covering 1,444 acres in the township of N. Burgess, county of Lanark. The properties comprise parts of lots 2 and 3, and all of 4, 6, 7, 8 and 9, in the fifth concession, lots 7 and 23 in the sixth concession, and lot 24 in the fourth concession, all situated on or in the vicinity of Noble's Bay, which is tributary to the Rideau waterway system, and about 9 miles south of Perth.

Some of the outcrops were worked for phosphate about forty years ago, but since then practically nothing was done until last September, when the present owners began work with a force of seven, under foreman David Boyce. As a result four of the old pits on lot 8, in the fifth concession, have been deepened to about 30 feet, each giving good shows of mica and considerable phosphate.

A mica shop, storehouse, stable and blacksmith shop have been erected on the property.

DONNELLY MINE.

This property was several years ago worked in a small way for the production of phosphate In December last, Messrs. Gemmell and Thompson, of Perth, re-opened it under lease, prospecting the old pits with results which have been so satisfactory that already about 10 tons of rough mica has been raised, and a mica body of unusual richness exposed. The mine is located on lot 16 in the fifth concession of N. Burgess township, Lanark county, and about 5 miles south of Perth. Operations are in charge of Mr. Gemmell, with a force of seven.

The main open pit or trench, which is sunk along the vein, measures a length of 40 feet, in a northeast-southwest course, by a width of 6 to 8 feet, and a depth of 25 feet, and dips 80° southeast. At 100 feet northeast, along the same line of strike of the vein, another pit was sunk, 6 by 6 feet in plan and 7 feet deep. One shed has been erected for a storehouse and mica shop. The hoisting is done by derrick and horse whim, and the drilling by hand. Instructions were given to employ safe methods of handling the explosives.

The mica vein is composed mainly of calcite with pyroxene, in which, where exposed over the entire floor of the pit, large crystals of mica are thickly embedded. Most of the crystals measure over a foot in diameter, although, of course, the usual proportion of small sized ones is also present. All are, however, remarkably clear, light-colored and free from fissures. The vein or mica body strikes northeast through a country rock of gray syenite, at the top only a few inches in width, but gradually increasing to over 8 feet at the bottom of the workings, and dipping at about 80° southeast.

ADAMS' MINE.

During the past three years this old mica property has been in operation only intermittently, and last year for but one month. At the present time, January 1903, two miners have again started work in one of the pits. The property lies on lot 7 in the eighth concession of N. Burgess township, 3 miles southeast of Perth, and is owned by W. Adams. A boiler and pumps were set up last summer to unwater one of the lower pits by the lake shore. Less than a ton of finished mica was raised.

KENT BROS.' MICA TRIMMING WORKS.

At these shops the scale of operations has been greatly reduced, one of the two branches having been in fact abandoned because of the difficulty of obtaining the same large supply of mica as formerly, their own mine, the Stoness in Bedford township, having dropped off in production. Not more than eight employees on the average were retained during the year, and at present the number is still less. Most of the stock of mica has been sold.

ADAMS' MICA TRIMMING WORKS.

Owing to a general desire on the part of mine operators to thumb-trim and cull their own mica, instead of trusting it to the trimming shops, work of this description has about ceased at this shop, and now the proprietors act merely as middlemen between miner and consumer, to accommodate the small independent producers in the disposal of their mica.

TROUSDALE TRIMMING WORKS.

Trimming has gone on fairly steadily all year with an average force of 4 men, the rough mica handled amounting to about 45 tons, from which some 11 or 12 tons finished product in various sizes was cut. The entire stock has now been cleared out, and operations will remain suspended until such time as the proprietor's mine, the McClatchey, shall have raised sufficient to keep the shop busy again.

MICA TRIMMING WORKS IN OTTAWA.

Webster and Company have continued trimming on a small scale, with an average force of about 5 girls during the year, handling mica from a new mine in Ontario, in which the company is interested, and from other producers in this Province, and in Quebec. Only a small stock is maintained on hand.

Eugene Munsell and Company have steadily employed an average of about 25 men and girls during the year. At present, however, the number is reduced to about 16. No changes have been made in the plant, and as formerly the mica is obtained from their own mines in Quebec, and from others in both that Province and Ontario; but a somewhat smaller stock is kept on hand.

The Mica Manufacturing Company and the Canadian Mica Company have gone out of the mica trimming business in Ottawa.

The Sills-Eddy Mica Company has employed about 80 hands during the year, of whom 60 were girls doing nothing but fine splitting. However, at the present time, January 1903, the force is reduced in numbers on account of production having slacked off somewhat at the Company's mines during the winter season. The splitting department forms a new branch of the business, inaugurated last spring on account of the increased demand for this very thin mica product. The Company has not mined recently for itself, but purchased its supplies of mica from various other mines in both Ontario and Quebec.

Mr. E. Wallingford, representing both the Wallingford Bros. and Company and the Ottawa Mica Mining Company, has temporarily opened up a trimming shop at 359 Rideau St. to handle the mica from the Cook mine in Quebec, and probably later from some of their other

mines north of Ottawa. With a force of 5 culling and thumb-trimming alone is attempted, which operations have hitherto been carried on altogether at the mines. The mica will not be held here in stock, but as soon as finished shipped to the various markets.

The General Electric Company have transferred their shops from Sydenham to Ottawa, and at the same time have enlarged the capacity and scope of the business. The new works are situated on the corner of Isabella and Elgin streets, in a spacious brick building, and contain all modern trimming and splitting appliances and machines, so that it undoubtedly surpasses anything of the kind yet established. Superintendent Chas. F. Briggs employs a force of 275, of whom but 12 are men and the remainder girls.

The rough-culled run-of-mine mica is prepared into a complete line of marketable sizes and grades, from the largest slabs of any thickness desired down to the thinnest flakes, though put principally into the latter state.

Separate departments have been established for the different operations of rough-cobbing and cleaning, of thumb-trimming and grading, of knife-trimming and of thin-splitting, through each of which, in the order given, the mica passes. The machine knives, of which there are 30, are constructed after an improved design, with a girl stationed at each. In the work of thin-splitting, 125 girls are employed.

Very large quantities of mica are handled here and all of it from the company's own mines. It is trimmed and shipped out again as soon as possible to Schenectady, the point of consumption. All of the waste or scrap formed (about 35 per cent. of the mine product) has, up to the present, been carefully stored here, awaiting the better market conditions for its sale for such purposes as mica boiler covering, and on the chance that the 1 by 2-inch size contained in it will soon become valuable for use with the next larger sizes in the manufacture of mica board.

All the machinery in the works is run by electricity supplied by the Consumers' Electric Company of Ottawa, and for heating, a 45-h.p. boiler has been installed. The sanitary arrangements include commodious well-kept lavatories. A lunch counter is also provided for the girls.

MICA GRINDING WORKS.

Under date of 20th January 1903, Mr. J W. Logan, manager of the National Mica Grinding Company at Gananoque, informed me that the operations at their plant have been suspended for a time, on account of the difficulty of disposing of the ground product, of which a large tonnage had accumulated at the works. This will be sold before grinding is resumed.

GRAPHITE MINES.

During the past year two producing graphite properties have been added to the list, which formerly comprised the Black Donald mine only. At one of the new mines, the McConnell, a concentrator was erected and has been in operation since the latter part of 1902, turning out refined flake graphite ; while from the other, the Allanhurst, the graphite which occurs in the amorphous form has been shipped in the lump form as mined. Besides these, a few other prospects with fair shows of this mineral have received attention at various points in eastern Ontario, and with results which may this year place them also among active producers.

BLACK DONALD GRAPHITE MINE.

The main underground workings were unwatered, and mining was resumed about 1st June last year to provide ore for the refinery, which, along with the hydraulic power plant neared completion at that time. The east stopes under the lake were enlarged both in height and length, and 600 tons more of ore taken out in the two subsequent months; but during all this time, and in fact from the beginning of mining, no accurate underground plans had been

kept, as a consequence of which too much rock was removed from the roof, and the weight of water in the lake above caused a cave-in. Fortunately no one was underground at the time, for almost instantly the entire mine was flooded. It appears now that only by damming for a length of 300 feet across the bay under which the hole lies, will it be possible to make the workings sufficiently water-tight to start the pumps.

In the meantime a small amount of ore is being raised from some of the old open trenches and pits farther inland which do not connect with the main mine. This southwesterly portion of the vein is being actively explored, both by mining and diamond drill operations, with the view of locating, if possible, a continuation of the graphite deposit in this direction. The ore from this, together with the old stock piles of lower grade material from the main workings, has meantime supplied the refinery to its full capacity. It is desired to defer building the dam for a year if enough ore can be put in sight by the new development. The timbers for the dam are, however, being drawn out now.

The hydraulic power plant on the Madawaska river, generating electricity to operate the mine machinery, was completed early in the spring, and has since continued in steady operation. At the mine the transmission lines lead into the new transformer house situated above the workings, and furnish abundance of power for machinery, electric lighting and refinery.

Another shaft has been sunk in the old open pit at 210 feet southwest of the main shaft; depth 34 feet, vertical and timbered. A crosscut from the bottom runs south 46 feet, and from its face an inclined upraise driven west 32 feet to near the surface. At 50 feet southwest of this a 20-foot pit was recently sunk in what appears to be the west end of the main ore body. At 300 feet southwest and up the narrow valley a 21-foot pit has been sunk near some older pits of about the same depth, but no ore was found, and now the diamond drill is exploring to greater depths and laterally. Considerable other drilling has been done along this southwest line of the vein, but so far without disclosing any large continuation of the ore.

The new shaft unexpectedly struck an enlargement of the main vein in the crosscut from the bottom. The graphite here has a width of 46 feet, but gives indications of extending only to the east, and possibly paralleling the main body. The graphite bodies maintain a fairly equal carbon content at all points of about 65 per cent., composed of the amorphous and the flake or crystalline in the proportions of 45 per cent. and 20 per cent. respectively. Limestone forms both the country rock through which the vein runs, and the intermixed gangue in the graphite; in the latter case associated with some foliated green chlorite locally called "mica" from its similarity to this mineral. Any graphite contaminated with this chlorite is sorted out for shipment without treatment as a product for foundry facings, since it has not as yet proven capable of being cleanly separated from the graphite.

The last mining underground in the flooded portion of the workings had disclosed a width of 26 feet, the greatest yet met in the most easterly face of the stopes. The width has fairly steadily increased from 15 feet at the westerly out-cropping to 26 feet at the east end over a distance of about 400 feet.

The refinery was completed last July with the installation of the various parts of the plant noted in my last report[4] and since has continued in operation. The first tests called for alterations in a few parts of the plant, such as the temporary erection of an auxiliary dryer of the ordinary fire-heated type to allow of further experimenting with the electrical machine. Also some more satisfactory design of crusher than the jaw machine and the disintegrator must be adopted, which will be capable of firmly gripping and crushing this most slippery graphite rock.

Two 30-h.p. and one 75-h.p. electric motors operate the refinery. From the 8 tons a day so far put through, graphite has been produced in nine grades. The first four are composed of flake or crystalline graphite, decreasing in size from the maximum of about 10-mesh, and in

[4] Bur. Mines, Vol. 12, pp. 292-4.

purity from 96 to 93 per cent. carbon; the next is a mixture of flake and amorphous for pulverization in the Raymond mill, running about 78 per cent carbon; and the last four are of amorphous powders, becoming successively finer and decreasing in purity from 62 to 54 per cent. carbon.

On the completion of the work of construction, Mr. W. K. Ganong succeeded Mr. J. B. McRae, as superintendent. The employes now number 32, the average working force.

M'CONNELL GRAPHITE MINE.

Located in N. Elmsley township, county of Lanark, about 7 miles easterly from Perth, the above graphite property has again been opened up after a period of idleness covering a good many years. The present owner, Mr. Rinaldo McConnell of Ottawa, before actually acquiring the rights, obtained the use of one of the Government's diamond drills and extensively explored the graphite bodies, which proved sufficiently continuous in richness and size to induce him to purchase the property and enter on the present course of development without delay. For several months both mine and mill have been in operation at the rate of about 20 tons per day.

The mine, which is at Oliver's Ferry, about two miles west of the concentrator at Port Elmsley, consists of two openings, one a vertical pit 18 feet deep by 30 feet long east and west by from 4 to 8 feet wide, with a 6-foot drift from the bottom south on another intersecting vein ; and the other 100 feet north of this, a trench running 250 feet east and west, increasing in width and depth from west to east from 8 feet by 6 feet to 30 feet by 15 feet.

The country rock in the vicinity is a gray crystalline limestone, through which run a series of graphite-bearing zones or veins, the two main bodies apparently lying parallel with an east and west strike, the others cutting across at different angles. The graphite occurs entirely in the flake form, disseminated through the limestone in an average content of 10 per cent, or thereabouts, although richer narrow bands appear in places ; and outwards into the schistose walls the amount of flake, if the wall be not sharply defined, gradually decreases. The workings are all in ore. In the east end of the long trench are indications that the body may add several feet beyond the walls to its present width of 30 feet. The flakes maintain a fairly uniform size of about 10-mesh.

A derrick and bucket are used at the pit, and a sled in the trench for raising the ore All is at once transferred to sleigh or wagon and hauled to the refinery, two miles distant. Practically nothing but pay rock has been raised so far. One building serves as blacksmith shop, storehouse, etc. The dynamite is stored in a place of safety, but in several respects the methods of handling the same were dangerous, and instructions for proper practices were given.

The refining machinery has been installed in a substantial stone building which was formerly used for other purposes The site overlooks the river Tay, beside a small water power which was already partially developed, but as it could not furnish sufficient power for the new works the plant has had to be repaired and enlarged. The main building has a floor area of 40 feet by 80 feet, and is now somewhat extended by several recent additions. There are four floors in the total height of 40 feet. Storehouses and office adjoin.

The graphite rock is dumped from the sleighs into a large bin outside the crusher room on the ground floor, and thence shot into the first crusher for reduction to one-inch material preparatory to drying. After all moisture is removed, an elaborate process of dry, followed by wet, concentration is pursued through a variety of machines in order that the saving from the somewhat lean ore may be as great as possible. The plant covers the four floors of the mill and consists of an 11 by 15-inch Dodge crusher, a stationary sloping floor dryer, another 6 by 10-inch jaw crusher, numerous revolving sizers interposed in various stages of the process, as also sun-

dry elevators, two sets of rolls of 16-inch diameter and 10-inch face, three pneumatic jigs, three sets of mill-stones, two buddles 4 feet in diameter, a revolving cylindrical dryer, and a power, light and heat plant, consisting of water turbine, a 125-light dynamo and a 30-h.p. boiler.

Two sizes of flake graphite are produced, the largest about 12-mesh, and these after barrelling are hauled to Elmsley station on the C. P. Ry., a mile and a half distant.

At the mine the employees number 8 under foreman D. McDonell: and at the refinery, 13 under the superintendent, A. McDonell.

Corundum Mines.

The corundum deposits of Renfrew and Hastings counties are receiving considerable attention, and the industry is taking on a permanent aspect well justified by the extensive occurrence of the raw material. Two companies are now actively mining rock, one producing sized corundum in grains, and the other shipping the ore to the United States for further treatment.

CANADA CORUNDUM COMPANY.

Another year of steady mining and milling by this company with the same plant and at the same rate of between thirty and forty tons of corundum rock per day has passed, with a widening of the scope of operations during the summer months by commencing a thorough surface exploration of the Craig mine, hill or mountain, and by carrying prospecting for other corundum outcroppings well into the surrounding country under the guidance of a qualified geologist. At the date of inspection, 15th January 1903, the work of erecting a new concentrator of a capacity of two hundred tons of rock per day has begun, the plan of construction, site, etc., having already been decided upon. The timber is being cut and drawn to the mill-site, to be sawn on the grounds as soon as the portable mill arrives. Concurrently with this a water power for the generation of electric energy for mine and new mill will be developed probably on the York branch of the Madawaska river about seventeen miles distant, the whole if possible, to reach completion towards the end of the coming summer.

Most of the corundum rock has been taken from the same open-cut workings that were in operation a year ago. The main or central cut maintains the same width of 80 feet, but now extends back into the hill 125 feet with a face 40 feet high ; and 75 feet west of the top bench another shallow cut has been opened out to 50 feet by 50 feet in plan by 30 feet high at face. The west cut farther up the hill has since the advent of the snow remained idle, though previous to this it had been considerably enlarged. The east cut, a year ago but a small pit, now measures 40 feet wide by 80 feet long by 25 feet depth at face ; a short distance down the hill from this the surface rock has been stripped clean over a length east and west of 300 feet, and up and down the hill 100 feet, exposing corundum bearing rock over nearly all of it. The other surface work was carried up to the top of the Craig mine mountain and a good distance to the west of the present workings over the face of this big hill, and resulted in showing up numerous other areas of rock containing corundum.

No changes have taken place in the management, and the number of employees remains at about 65, with the exception, of course, of the bush-men and construction gangs now on the way in, or already engaged.

ONTARIO CORUNDUM COMPANY.

In July 1902 this company commenced developing a corundum-bearing deposit on a property located on the south halves of lots 14 and 15, in the tenth concession of Carlow township, county of Hastings, and situated some miles west of the Craig corundum mine, or by the road past Craigmont about 32 miles from Barry's Bay station on the C. A. Railway. The owners, the Ontario Corundum Company, with offices in Ottawa and Boston, have erected substantial

power buildings and camp, and mined a large tonnage of rock which, after hand-sorting to a content of about 15 per cent. corundum, has been shipped in the lump form to the company's works in the United States, and there concentrated into clean corundum for the manufacture of abrasive tools by admixture with other abrasive materials such as emery and garnet. It can hardly be advantageous to ship rock carrying about 85 per cent. waste first by sleigh and then by rail over such a distance, and the likelihood is therefore that a concentrator will be erected at the mine at an early date.

All mining is confined to one open cut driven north into the rock bluff which rises 75 feet above the flat or valley bottom. The cut measures 60 feet by 60 feet in plan, by 50 feet high, this height being attained in several narrow working benches or steps up the face. Only one machine drill is used, but the masses of rock which can be blasted out at a time are so large that it is quite sufficient. After sorting the ore out into waste, mixed, and shipping grades, these are stocked in separate dumps.

This rock bluff presents an almost perpendicular face running east and west, ending abruptly at about 150 feet west of the mine workings, where it cuts back to the north. From this western face east for 200 feet, or 50 feet beyond the mine cutting, it is formed of a band of pink feldspathic rock carrying the corundum in a surrounding reddish syenite formation. Other narrow bands of black micaceous schist and of coarse pink pegmatite in the syenite serve to define the dip and strike of the syenite and bound the corundum-bearing band on the east and west sides. To the north and south the band cannot be traced very far on account of the overlying drift. The rock in sight will, however, average about 12 per cent. corundum in crystals fairly uniformly distributed. The occurrence and composition of the band closely resembles that of the well-known Craig mine deposits to the east.

The power house situated 100 feet east of the mine, and close to the rock bluff for protection from the blasts, is partitioned off into several rooms, and in these has been installed a plant consisting of a 30-h. p. vertical boiler, a 12-h. p. horizontal engine connected to a 7 by 11 inch Blake crusher, and the boiler feed pump, also blacksmith shop, ore bins and store and shipping room. The use for the crusher has for the time being disappeared, since it is found more satisfactory simply to rough hand-cob for shipment in large lump sizes than to crush down everything prior to sorting and sacking.

The camp buildings comprise office, several private dwellings, boarding house, storehouse, stable and dynamite magazine. With regard to the last and to the general handling and thawing of the explosives, several instructions for the adoption of safer methods were necessary.

At the date of inspection, 16th January 1903, the employees numbered twelve, under foreman S. White and superintendent G. F. Sandt. The mine post office is New Carlow, Ontario.

Feldspar Mines.

Feldspar high in potash, and both pink and white in color, is found in quantity in Bedford and adjoining townships of Frontenac county, and is in demand among pottery and porcelain manufacturers in New Jersey and elsewhere in the United States. The quarrying and shipping of the rock has given rise to a local industry of some importance.

Richardson Feldspar Mine.

With the exception of four months in the spring, when all operations were suspended, last year witnessed a fairly heavy production, which frequently went as high as 200 tons of feldspar per day. In summer the route by which the ore is transported from mine to railway follows a quarter mile of road to Thirteen Island lake, where the ore wagons are run on to the three flat barges and towed across to the other shore three-quarters of a mile distant by the small steam

boat belonging to the company. Here other teams draw the loads 1½ miles farther by road to the terminal of the 2-mile branch of railroad run in a few years ago to the Glendower iron mine from the K. & P. Railway at Bedford station. In winter the sleighs follow much the same route, crossing the lake on the ice, but continuing on to Bedford, 2 miles farther by road, this being the winter loading place.

The mine workings or quarries are confined to an area of about 150 feet by 200 feet, all of which, with the exception of a small central portion, has been stripped of several feet of clay covering to allow of raising rock from every available point. The main working extends as an open cut from end to end of the west side, 175 feet long by 50 feet wide by 35 feet deep at the west face, the floor rising in three benches of 5 feet each from the south end. The pit next in size lies at the east side 50 feet long by 50 feet wide by 20 feet deep. The numerous other working places are scattered at various points over the area, but are all as yet of considerably smaller dimensions than the above two.

Feldspar covers the floor of this whole mine area, practically all of it clean and pure, but on the west side in the wall of the main cut the good spar runs flatly under a capping of granite, which, on account of the rising surface of the hill, has gradually increased in thickness to 12 feet at this distance in. This capping has had to be blasted off first and removed separately to avoid contaminating the feldspar beneath. On the floors of the workings any cobbing and sorting that may be necessary are carried out, so that the clean spar need not be again handled on the surface. A large swinging arm derrick, the carriage operated by hoist engine from the adjoining power house, raises rock from the main cut; but from the others the rock is all handled by horse and sleigh or wagon. Drilling is doneby three machine drills using steam.

The camp buildings comprise office, stables, blacksmith shop and boiler and hoist house. So far the men have boarded at the farm houses in the neighborhood, but this is proving unsatisfactory, so that probably the company will in the near future erect buildings of their own at the mine. The power plant includes a 30-h.p. locomotive type boiler, and a double-drum duplex cylinder hoist engine using ⅝-inch steel rope.

It was necessary to give instructions for the adoption of proper buildings, appliances and methods for the safe handling of explosives in and about the mine. There are now 30 employees engaged in mining and 22 on the road hauling ore, all under superintendent Sam Hunter.

PENNSYLVANIA FELDSPAR COMPANY.

The above company with headquarters in Toughkenamon, Pa., leased several feldspar properties in Frontenac county last year, and since the month of November have produced several thousand tons of the spar. This has been immediately shipped away to the company's pottery and porcelain works at the above town in the United States. On 27th January 1903, I inspected the Border mine; and as to the other smaller workings operated by the company I obtained information from the superintendent, Mr. W. H. Oliphant of Hartington.

Border mine: This is situated on lot 6 in the twelfth concession of Portland township, an area of 60 acres, situated near the south shore of Long lake and about 2 miles east by road from Verona, K. & P. Ry. The mining work is confined to one open pit or quarry 40 feet long by 30 feet wide by 6 to 12 feet deep, from which the feldspar is hauled out in wagons to the stock piles or directly to Verona for shipment.

The band of feldspar under development runs in a northeast-southwest direction through a formation of gneiss, and in places is capped over to a depth of a few feet with the same or with a mica schist. It is said to be traceable for about 1,000 feet in length with a width at the pit of 40 feet. No more definite idea of its extent was obtainable, since it had not been uncovered

y exploration in any other places. The feldspar is a pink microcline with cleavage planes well developed, one of which lies flat and gives the whole a bedded appearance. Intermixed are occasional small and large stringers of clear quartz together with some plagioclase feldspar near the gneiss and black mica schist walls. The blasts shatter the spar into small material thus allowing of fairly close and rapid hand-sorting both in the pit and when loading off the stock piles.

Great carelessness was displayed in the handling of the blasting explosives, and instructions for the immediate adoption of safe methods were given. The force of miners numbers 12, under foreman F. Clarke.

Freeman mine: This property is situated on adjoining parts of lot 1 in the twelfth concession of Portland and lot 1 in the 12th concession of Loughboro township on Fourteen Island lake about 5 miles east by winter road from Verona. Mining has been confined to one open cut or quarry 10 feet by 40 feet in plan by 30 feet deep at the face, following into a band of white feldspar which is said to cut through a hill over a traceable length of 500 feet. The feldspar contains a rather large quantity of quartz in small disseminated stringers, and also some black mica. Although quartz is not injurious (having to be added later at the manufactory) its presence in the feldspar at the mine occasions a loss in freight charges for its transportation. The mica, however, ruins the spar for pottery work unless it be all cleanly sorted out. This white spar has not a defined cleavage, rarely presenting a plane face. Its use is said to give equal satisfaction to that of the pink variety.

The force of miners here numbers 12 under foreman J. Carstlick.

Walker mine: This mine is on lot 2 in the 10th concession of Portland township, 5 miles northeast of Hartington or the same east of Verona. Two pits or quarries were opened out each about 20 feet by 20 feet in plan by 20 feet deep at the face in the hill. The feldspar here is also white but more glassy than at the Freeman mine on account of better defined planes of cleavage.

HARRIS FELDSPAR MINE.

This recently opened property is located on lot 3 in the third concession of Bedford township, Frontenac county, containing an area of 200 acres, 4 miles by road east of Bedford station on the K. & P. Ry. The mine workings are on the top of a high hill at the northeast end of Thirteen Island lake. Chas. Jenkins of Petrolea the owner, has kept a force of 7 men mining since last fall under foreman Joe Harris, with the production and shipment of over 200 tons of feldspar up to 26th January 1903.

The mine workings are in two open pits 10 feet apart, one of them measuring 30 by 40 feet in plan by 15 feet deep, and the other 15 by 20 feet in plan by 5 feet deep, the rock from both being raised by the one swinging arm derrick and bucket operated by a block and tackle and horse. The feldspar is quite similar to that of the Richardson mine as far as revealed in the two pits, which are the only uncovered places. It is a pink microcline with well defined cleavage planes, one of them flat, and traverses a formation of gray to pink gneiss. But very little quartz or rock matter is to be found, giving a feldspar of first-class quality. According to Mr. Harris the body of feldspar measures over 200 feet east and west and considerably more than this north and south (probably its length if it occurs as a band). On account, however, of the limited amount of surface development the quality over this area is not yet known, the outcroppings being few and scattered.

One small camp building has been erected which serves all purposes of living and storage. It was advised that proper buildings and apparatus for the safe handling of dynamite be at once provided.

Jarman Pyrites Mine.

Production of pyrites ore has continued steadily since last inspection ; but at 12th January 1903, the open pit had been abandoned for about a month and mining was being confined to the shaft workings some 600 feet to the south. Considerable more ore has been raised out of the open pit, and an 18-foot shaft sunk in the floor close to the foot wall, from the bottom of which crosscuts run north 45 feet, west 35 feet and east 40 feet. This exploratory work, according to the manager, showed pyrite, but too lean to pay for mining.

The shaft has reached a depth of 136 feet (38 feet increase), the new portion increasing in dip to nearly vertical. First level, north drift 183 feet (178 feet increase), with crosscuts from the face west 16 feet and east 10 feet. Second level (new), depth 113 feet ; north drift 148 feet, with at 65 feet in a stope 26 feet long by 9 feet high by 6 feet wide ; south drift 138 feet, with at 100 feet in a stope 14 feet long by 6 feet high by 8 feet wide, and at 125 feet in another stope 9 feet long by 4 feet high by 6 feet wide.

A new skip road has been solidly placed down the shaft to the second level and fitted with back timbers, and the ladderway down to the bottom ; but the two are not yet partitioned off. In a station just north of the shaft on the second level a small hoist is installed to continue sinking the shaft with bucket.

A new surface plant has been erected consisting of a power house in which are installed two 100-h.p. return tubular boilers, an Ingersoll air-compressor of 6-drill capacity, and a duplex-cylinder, single 5-foot drum hoist engine operating the skip by 1-inch steel rope ; a solid shaft house 53 feet high to sheave where the skip dumps the rock over a set of grizzlies for classification into three sizes, viz., coarse, middling and fines for separate shipment ; and a comfortable dry room just east of the shaft house.

The underground development shows the vein to be lenticular in character with usually well defined walls of soft schist, and to vary in width from zero in the south faces of both levels where, for the time being at any rate, it pinches out, to a maximum of 11 feet, the average being about 6 feet and the sulphur content 40 per cent.

The name by which the owners now designate themselves is the Madoc Mining Company with offices at Madoc, Ont., and manager Mr. Z. K. Jarman. The employees number 45, of whom 25 are engaged in mining.

Richardson Zinc Mine.

A zinc mine in Frontenac county is another of the unexpected developments of this varied mining district, and it is the more interesting in that from the surface down pay ore has been raised, the vein maintaining its richness and size in depth and length where explored. The property is located on lot 3 in the fifth concession of Olden township, 8 miles by road west of Parham station on the K. & P. Ry., and is owned by J. Richardson & Sons and others, of Kingston, Ont.

With the advanced state of sinking the mining machinery became inadequate, particularly for a winter season's work, since proper quarters for both men and plant have not yet been erected. Further development was therefore suspended in December until this spring. Up to that time about 900 tons of ore running 46 per cent. zinc was raised from the several shafts. The main shaft attained a depth of 80 feet on the vertical vein traversing the limestone formation. On the same lead at some distance from the main shaft a second shaft was sunk 18 feet ; and a parallel vein 12 feet to one side of the other has been stripped and prospected over its length. The matrix of the veins is limestone through which the blende occurs disseminated, together with an occasional pocket of galena.

The present mining plant of boiler, steam hoist, machine drills and derrick will either be added to or entirely replaced by larger and more satisfactory appliances on the resumption of operations this season.

Ottawa Carbide Works.

With the completion of alterations in the arrangement of the milling portion of the works, and with the sale of the last of the calcium carbide on hand from the previous year, operations were again started in July last, but at a rate of production reduced now to just sufficient to supply the demand. The number of furnaces in fusion at one time during the day varies from 6 to 20 (the maximum) according to the amount of electric power then available, but always so as to maintain the proper daily output.

Two years ago when this plant commenced manufacturing, the acetylene gas industry was in its infancy, and no estimate of the demand for carbide has until recently been obtainable, with the natural result that over-production followed. Now, however, it is possible to closely adjust the supply to the demand, and it is interesting to note a gradual steady increase in the latter.

The carbide manufactory at Merritton, Welland county, was also in operation during 1902, but was not visited by the writer.

FOSSILIFEROUS ROCKS OF SOUTHWEST ONTARIO.

BY W. A. PARKS.

Pursuant to arrangements made with the Director of the Bureau of Mines the writer spent the month of May 1902 in collecting fossils and in examining the various rocks in the southwestern peninsula of Ontario with a view to ascertaining their economic importance.

The field examined covered the whole region from Hamilton to the mouth of the Aux Sables river. It is evident therefore that but a cursory inspection could be given to any particular locality. This report does not pretend in any way to be a detailed account of the area in question, or of any part of it, being merely a series of notes intended to express the more striking points observed in an itinerary trip of one month across the region. A considerable number of fossils were collected, all of which have been added to the palæontological collection of the University of Toronto.

The southern part of the western peninsula of Ontario comprises a comparatively level region reaching from the escarpment at Niagara, Hamilton and Collingwood to the waters of lakes Huron, St. Clair and Erie. The greatest altitude is reached in the vicinity of Stratford, from which point a gentle slope leads westward to lake Huron and southward to lake Erie. A mantle of glacial detritus hides the rock at considerable depths, permitting it to outcrop only where post-glacial river valleys have furnished lines of dissection. This covering of clay and sand begins at the eastern end of the section at the very brow of the "mountain" at Hamilton. The upper layer of the Niagara formation as here exposed consists of a stratum of hard limestone filled with chert, known as as the upper chert bed. These silicious fragments show impressions of several obscure bryozoa of the genera *Cladopora*, *Callopora*, *Fenestella*, *Lichenalia*, etc. In some instances the whole nodule is the remains of a lithistid sponge as *Aulocopium*, *Rossosignum*, etc. Besides these, numerous spicules of silicious sponges are found, which make it very probable that these organisms furnished the whole supply of silica for the chert beds. The fields along the escarpment form splendid hunting grounds for these sponges and other flint-flake fossils whose superior hardness has permitted their preservation after the surrounding limestone has succumbed to the various forces of disintegration. Deep grooves and fine glacial striae in a southwesterly direction may be seen where the rock has been recently exposed.

Niagara Limestone at Ancaster.

Between the head of the inclined railway at Hamilton and the village of Ancaster no rock exposures are seen ; at this latter point however we may pass over the edge of the escarpment and encounter Niagara limestones where the main road from Hamilton enters the village. Here several quarries are in operation. One owned by Mr. Middleton is situated on the north side of the road, and presents at the top five feet of so-called honeycomb rock. This is a cavernous limestone the spaces in which are lined by small quartz crystals or filled with gypsum and, in some instances, barite. In the better preserved parts of the honeycomb these cavities are seen to arise from the weathering away of masses of a favositoid coral probably *Favosites Gothlandica*. This rock is said to make a sandy lime and consequently it is used mostly as road metal. The next stratum is a heavy limestone bed in which fine crystallization has obliterated all trace of fossils. This bed is somewhat shattered in places by jointing, but still furnishes

large quantities of excellent building stone. Underlying the bed are three feet of thin limestones, five feet of well laminated limestone, five feet of solid finely crystalline limestone said to chisel excellently, and eight inches of loose material. On the opposite side of the road quarries have been opened by Messrs Guest and Hendrie which present practically the same series of rocks. An analysis of the best rock from these quarries shows it to be a typical dolomite with the following composition :

Moisture	0.23 per cent.
Insoluble matter	1.60 "
Carbonate of lime	53.30 "
Carbonate of magnesia	43.13 "

Outcrops of the Corniferous.

Proceeding westward from Ancaster no exposures of rock are encountered until Woodstock is reached, at which point the erosion of the Thames has removed the glacial debris from the underlying Corniferous limestone. Both north and south of the highway rock is to be seen, not however for some distance west of Ancaster. The road from this place to Brantford reaches the summit about two miles out and then traverses a level clay country. At Brantford although no rock is normally exposed, it has been encountered above the dam at about 15 feet below water level, and below the dam about five feet down. An opportunity was had of seeing a small piece removed in making excavations for new piers for the Brantford Power and Light Company. The sample was a hard compact gray limestone with a distinctly glaciated surface ; the direction of glaciation was of course indeterminable, the rock not being in place. Conversation with workmen led to the opinion that both the striae and dip of the rock had a southwesterly direction.

At Brantford post-glacial gravel lies directly on the rock ; it is almost continuous as far as Galt and also extends west to Burford. Southward however it gives place to clay ; for at the Cockshutt bridge, two miles south of Brantford, forty feet of continuous clay, devoid even of sandy partings, was pierced in making foundations for a new bridge.

These post-glacial beds consist mainly of coarse sand with pebbles mostly of limestone, but many of the Archæan rocks are also represented, sometimes by fragments of considerable size. Continuing south from Brantford, clay deposits alternate with gravel, the country gradually growing less hilly to the vicinity of Waterford. South of this place several interesting exposures of Corniferous rock are to be seen. Stratified gravels prevail in the immediate vicinity of Waterford, but on passing south towards Rockford theyagain give place to clay, which is practically continuous to the shore of lake Erie.

Corals in Townsend and Walpole.

At Villa Nova, lot 18 in the eighth concession of the township of Townsend, is an excellent exposure on which a quarry has been opened. About eight feet are here exposed, the upper three being a silicious hornstone with corals, and the lower five, banded limestone with numerous fossils. The best stratum for building purposes is eight or ten inches in thickness, the last layer exposed being bluer, harder and less fossiliferous than the overlying seams. One band in particular is so filled with corals and is so clean and compact that it should cut and polish to a handsome ornamental stone. A number of fossils were collected here, and it must

be understood that this list and those which follow make no pretence to being complete but simply represent the species the writer was able to collect in the short time at his disposal :

Syringopora perelegans,
Syringopora nobilis,
Syringopora Hisingeri,
Blothrophyllum decorticatum,
Zaphrentis gigantea,
Favosites basaltica,
Streptelasma corniculum,
Favosites turbinata,
Michelinia convexa,
Favosites limitaris,
Cyathophyllum exiguum,
Zaphrentis prolifica,
Zaphrentis Schumardi,
Stropheodonta ampla,
Stropheodonta demissa,
Calymene sp.,
Ganoid plate,
Favosites hemispherica,
Favosites Helderbergiæ ?
Favosites favosus,
F. Gothlandica (Lambe)
Zaphrentis gigantea,
Crepidophyllum colligatum,
Heliophyllum exiguum,
Cladopora labiosa,
Michelinia Clappi.

For some distance south of Villa Nova the rock is quite close to the surface and crops out at several places. At Rockford, lot 22 in the ninth concession of Townsend, are considerable exposures of coralline limestone bearing many other fossils, conspicuous among which are masses of *Stromatopora*. The exposures are some acres in extent, with the fossils well weathered out and lying on the surface of the fields, particularly where a small stream has aided in the disintegration of the rock. About 20 feet are exposed in all. Some flint of a reddish color is attached to many of the corals and much resembles that at Villa Nova. The fossils from Rockford are as follows :

Stromatopora tuberculata,
Stromatopora mammillata,
Stromatopora perforata,
Favosites turbinata,
Favosites hemispherica,
Favosites basaltica,
Favosites polymorpha (Bill.),
Blothrophyllum decorticatum,
Fistulipora Canadensis,
Zaphrentis mirabile,
Zaphrentis Schumardi,
Zaphrentis prolifica,
Cyathophyllum Halli,
Diphyphyllum Simcoense,
Syringopora Hisingeri,
Phillipsastrea Billingsi,
Ganoid plate,
Crinoid joints,
Numerous ill preserved *Bryozoa*.

A third excellent exposure in this vicinity is at Teitz' quarry, lot 1 in the fourteenth concession of Walpole, which probably lies at a higher horizon than either of the preceding. About ten feet are exposed of roughly bedded limestones with numerous fossils, which are in some respects different from the assemblage at the two other quarries. Some species are found here which are rare or quite absent from the previously described deposits.

Platyceras ventricosum,
Platyceras bisulcatum ?
Platyceras sp.
Platyostoma ventricosa,
Athyris clara,
Stropheodonta ampla,
Stricklandinia elongata,
Favosites turbinata,
Favosites hemispherica,
Michelinia convexa,
Syringopora perelegans,
Chonophyllum magnificum,
Cyathophyllum Halli,
Zaphrentis prolifica,
Zaphrentis mirabile,
Fistulipora Canadensis,
Numerous indistinct *Bryozoa*,
Large crinoid columns.

At Springvale, lot 6 in the fourteenth concession of Walpole, outcrops an even bedded non-fossiliferous limestone showing glacial striae west-southwest on the surface. The heaviest beds are eight to ten inches thick and of a whitish gray color. Below the level of the quarry the rock is said to be a blue limestone, but this requires confirmation. The non-fossiliferous limestone shows increasing silica on descending. The average lime made from the rock has hydraulic properties and requires about 16 to 1 of gravel to make a durable cement. Analysis:

Moisture	0.15 per cent.
Silica	3.69 "
Alumina	3.29 "
Ferric oxide	1.89 "
Calcium oxide	31.58 "
Magnesium oxide	17.79 "
Ignition loss	44.73 "

Overlying this and a few rods west of the exposure are beds of Oriskany sandstone six to eight feet in thickness, from which were obtained specimens of

Platyostoma ventricosa,
Leptaena rhomboidalis,
Atrypa reticularis,
Pentamerus aratus,
Stropheodonta inequistriata,
Stropheodonta ampla (*magnifica*),
Zaphrentis prolifica,

also a magnificent fragment of the jaw of a ganoid fish.

The fossils, with the exception of the ganoid fragment, are mostly casts, the calcareous matter of the shell having been dissolved. Two sorts of stone are quarried from this exposure, an extremely hard variety with silicious cement which may prove useful for grindstones and for refractory purposes, and a soft friable example possessing insufficient coherence to make a satisfactory building stone. Above the sandstone, towards the northwest corner of lot 6 in the fourteenth concession of Walpole, is a ridge of Corniferous rock, presenting the characteristic fossils of the coralline beds and many fragments of trilobites. Among numerous examples were found:

Fourteen species of corals.
Phacops bufo,
Phacops rana,
Calymene (crushed),
Platyostoma ventricosa,
Stropheodonta demissa,
" *inequistriata*,
" *ampla*,
Etc., etc., etc.

This seems the best locality for the collection of trilobites.

Southwest of these deposits, on the farm of Elias Shoap, lot 9 in the thirteenth concession of Walpole, is an excellent exposure showing 20 feet of vertical section. The upper strata consist of about ten feet of thin bedded fossiliferous cherty limestone with corals predominating, as at Rockford. This is underlaid by five feet of soft sandstone as at Springvale, while the bottom five feet consist of hard indurated sandstone with silicious cement.

LIMESTONE QUARRIES AT HAGERSVILLE.

But occasional small outcrops are seen from this point to Hagersville, where are situated some of the most extensive quarries in the district. Glacial striae west-southwest are observed on the surface rock. The upper ten feet of this section show the cherty coralline limestone with a predominance of favositoid corals, below which lie six or eight feet of more heavily bedded and less fossiliferous stone of excellent quality for building purposes. Underlying this

layer are two feet of stone which is practically all flint, and is succeeded by five feet of good blue limestone giving the following analysis :

Moisture	0.24 per cent.
Insoluble residue	5.32 "
Ferric oxide	1.21 "
Alumina	3.99 "
Lime	45.14 "
Magnesia	1.64 "
Carbonic acid	35.46 "
Loss on ignition	40.89 "

The writer is informed that a drill hole 87 feet exposed nothing but continuous limestone. Most of the product of these quarries is made into rubble, in which an extensive trade is carried on. The percentage of silica has the effect of rendering the rock rather hard, and somewhat impairs its value as a building stone on account of the added difficulty of chiselling.

List of fossils from the Hagersville quarries :

Favosites hemispherica,
" *basaltica*,
" *turbinata*,
" *limitaris*,
Cyathophyllum Halli,
Zaphrentis prolifica,
Streptelasma corniculu,
Michelinia convexa,
Michelinia Clappi,
Syringopora perelegans,
" *Hisingeri*,
Diphyphyllum Verneuilanum,
" *Simcoense*,
Enomphalus de Cewi,
Callonema lichas (or a form closely related),
Cladopora labiosa,
Spirifer duodenaria,
Spirifer sp. (resembles *mauni* Hall),
Stropheodonta ampla,
" *demissa*,
" *inæquistriata*.

Just south of Hagersville at the cutting on the Michigan Central railway the nodular coralline limestone is seen showing, besides the ordinary corals,

Michelinea Clappi = Hamieophyllum ordinatum,
Leptaena rhomboidalis,
Stropheodonta Patersoni,
Conocardium trigonale,
Stricklandinia elongata,
Atrypa reticularis.

Oriskany and Lower Helderberg.

Two miles south of Hagersville, at the "Gore," the soft sandstones of the Oriskany crop out, underlaid as usual by the smooth non-fossiliferous limestone.

Following the road from Hagersville to Cayuga, the first exposures are of the hard cherty limestone seen at the cutting of the M.C.R. This rock underlies the sandstone and separates it from the "waterlime"; it was not observed at Springvale and does not appear to be continuous. The Oriskany sandstone reaches a thickness of 15 feet in this vicinity, and shows distinct traces of glaciation in a west-southwest direction. The rock itself is more compact and of better grain than that at Springvale, and is quarried at several points along the road. The above mentioned chert is absent at many points, the sandstone being directly succeeded by the smooth limestone, an average analysis of which gives :

Water	0.35 per cent.
Silica	3.44 "
Alumina	2.34 "
Ferric oxide	1.86 "
Calcium oxide	26.61 "
Magnesium oxide	17.47 "
Ignition loss	44.96 "

On lot 40 in the fourth concession of North Cayuga, this lime rock is again exposed where a quarry has been opened by Mr. J. Best. The upper ten feet consist of the even-bedded gray non-fossiliferous limestone, while the lower part shows the same lack of fossils but is of a bluish hue, and capable of being quarried in larger blocks. The analysis of this rock is as follows :

Water	0 55 per cent.
Silica	4.14 "
Alumina	26.60 "
Ferric oxide	1.56 "
Calcium oxide	20.09 "
Magnesium oxide	14.51 "

The unusually high percentage of alumina is remarkable ; this rock might well be used to enrich others in the vicinity whose content of alumina is too low for the best results in the manufacture of hydraulic cements. The surface of the rock at this quarry shows distinct glacial striae running west-southwest. The overlying soil is heavy boulder clay. On lot 36 I.S. of North Cayuga, the valley of denudation of Rattlesnake creek shows an excellent section of these lower beds, about 30 feet being exposed. The upper portions consist of the non-fossiliferous waterlime beds separated by shaly layers, while at the bottom of the section bluish, friable limestones crop out. Much of this stone is fine-grained and very uniform ; it should afford examples suitable for lithographic work.[1]

We have therefore, in this vicinity, thirty or forty feet of the so-called waterlime belonging to the Lower Helderberg series resting on a shaly blue limestone, and covered in places by a narrow bed of chert, or where this is absent, succeeded directly by the Oriskany sandstone showing a maximum thickness of twenty feet. Close above the sandstone are the coralline layers of the Corniferous, which is attested by the fact that in many of the fields surrounding the sandstone exposures, fossils of this type may be collected. The following were noted :

Favosities hemispherica,
" *basaltica*,
" *basaltica*, var. *epidermata*,
" *polymorpha*.
" *limitaris*,
" *turbinata*,
" *Helderbergiae* (or closely allied),
" *favosa* = *F. Gothlandica* ?,
" (a species resembling *F. proximus* Hall),
Michelinia Clappi,
Michelinia convexa,
Acrophyllum Onondagense,
Zaphrentis prolifica,
" *gigantea*,
" *mirabile*,
Diphyphyllum Verneuilanum,
" *Simcoense*,
" *sp.*,
Blothrophyllum decorticatum,
Crepidophyllum colligatum,
Syringopora Hisingeri,
" *perelegans*,
Cyathophyllum (*Heliophyllum*) *Halli*,
Streptelasma corniculum,
Phillipsastrea Billingsii,
Cystophyllum vesiculasum,
Alveolites Goldfussi,
Aulopora respens,
Stromatopora granulata,
" *mammillata* (variety with small "mammae,")
Platyostoma ventricosa,
Euomphalus de Cevi,
Callonema lichas (probably cast only),
Leptaena rhomboidalis,
Stropheodonta ampla,
" *Patersoni*,
" *demissa*,
" *inaequistriata*,
Spirifer duodenaria,
Atrypa reticularis,
Phacops bufo,
Phacops rana,
Proetus crassimarginatus,
Calymene sp.,
Dalmanites myrmecophorus (or closely allied, portion of pleura only).

[1] This rock is not entirely non-fossiliferous, some rare specimens being found in it.—See Geology of Canada, 1863, page 354.

There is no doubt that a continued search would reveal all the known species of the coralline layers as well as many not yet recorded in Canada, species of trilobites and gasteropods particularly. No mention is made of an enormous number of bryozoa, but as casts only are found, the work of identification is difficult and extremely unsatisfactory.

From this vicinity southward to Cayuga no more exposures are encountered, the rock being hidden beneath a uniform bed of clay. South of this town outcrops are well known, but the expedition was not carried so far.

Gypsum Deposits in the Onondaga.

Returning to Brantford, the north and south section was continued farther north, the first exposures being seen in the banks of the river at Paris, where the Onondaga or gypsum-bearing formation is encountered. Near the bridge over the Grand river at this place fifteen feet of soft, thin-bedded shales with interlaminations two to four inches thick of soft limestones are exposed. An analysis of this limestone was made to ascertain its general nature and its content of gypsum, of which substance it proved practically free, as a glance at the analysis will show :

Water	0.33 per cent.
Insoluble residue	3.32 "
Calcium oxide	27.77 "
Magnesium oxide	15.15 "
Carbonic acid	33.42 "
Sulphur	0.60 "

In spite of its association with the gypsiferous shales this rock is therefore very free of both alumina and sulphur. The uppermost layers however are more cavernous than the typical rock analysed, and contain small particles of gypsum. The shaly portions are soft and friable, and resemble the Don Valley shales of the Hudson River formation as exposed near Toronto. These shales are practically the same as the slate at gypsum quarries, of which an analysis will be given later.

At Paris the rock is covered by a thick deposit of post-glacial gravel similar to and probably continuous with that at Brantford. About a mile and a half below the town are situated the gypsum quarries or "plaster mines," as they are called locally. The Grand has hollowed out its bed through the gravel which rises to an elevation of 100 feet or more above the high water level, at which point the rock is exposed for a half mile along the river. The method of quarrying is to run tunnels about five feet square into the hillside and to enlarge these passages into chambers where good material is encountered. The product, as brought to the mouth of the tunnel, consists of mixed slate and gypsum, both gray and pure white in color. The gypsum occurs in irregular cracks in the shale with its fibres arranged at right angles to the walls, or as selenite in ramifying veinlets traversing the slate in all directions. Some portions of the rock are filled with crystals of gypsum, while in certain places the valuable material seems interbedded. Speaking roughly, the white product would average about 15 per cent. of the rock quarried. The residue however contains more or less gypsum and is ground and sold for land plaster. The slate assays as follows ;

Water	0.75 per cent.
Silica	52.02 "
Alumina	8.03 "
Ferric oxide	3.80 "
Calcium carbonate	9.90 "
Magnesium carbonate	2.34 "
Sulphur	1.00 "

At present three men are working in a tunnel which has been driven about 600 feet into the hillside, and which has been worked for nine years. Previous to this tunnel fourteen others, some of them extending to greater distances into the hillside, had been excavated. At various other points along the river valley similar deposits occur, and there is no doubt that a practically inexhaustible supply of the material exists in the vicinity.

The Paris waterworks are situated two miles above the town, at which point a copious spring bursts out of the gravel. The water is somewhat calcareous, as is seen in considerable deposits of travertine containing impressions of leaves and various small organisms. These are the only fossils to be seen in the vicinity.

Westward from Paris rock is next exposed at the Grand Trunk Railway bridge at Woodstock. This outcrop resembles the cherty coralline limestone of the Corniferous as already described; it contains beautifully preserved examples of *Favosites hemispherica* as well as *F. polymorpha* (Billings), numerous *Diphyphyllidæ* and *Cyathophyllidæ* and *Bryozoa*. The following were collected:—

Diphyphyllum Verneuilanum,
" *stramineum*,
" *Simcoense*,
Zaphrentis gigantea,
Favosites polymorpha (Bill.),
" *hemispherica*,
Favosites turbinata,
Syringopora Hisingeri,
Cladopora labiosa,
Undetermined *Campanularian*,
Numerous *Fenestella*,
Small crinoid joints.

Below this are about eight feet of thin-bedded blue fossiliferous limestone more or less cherty and bituminous throughout. This rock yielded specimens of

Strophcodonta inæquistriata,
Atrypa reticularis,
Platyostoma sp.,
Stromatopora tuberculata.

More of the above corals in fewer numbers and very numerous impressions of Bryozoa, particularly the *Fenestellidæ*. The substance of those forms is unfortunately entirely gone and their only remains are the impressions on the flinty nodules.

The Beachville Quarries.

Occasional exposures are seen in the valley of the Thames towards Beachville, where a number of quarries are operated on a rock of decidedly different general appearance from that at Woodstock. East of the village and north of the river a quarry has been opened, the surface layers of which are somewhat coralline, while the underlying rock is of a whitish color and carries bitumen. Across the river an extensive quarry shows this white layer with fucoids, *Conocardium trigonale* and numerous *Athyris spiriferoides*, with a less abundance of *Zaphrentis prolifica*. This white rock gives an excellent analysis as below:

Water	0.20 per cent.
Silica	0.13 "
Alumina	trace
Ferrous oxide	0.22 "
Calcium oxide	53.71 "
Magnesium oxide	trace
Sulphur trioxide	0.35 "
Ignition loss	43.92 "

Three feet below this bed are a few feet of friable rock followed by eight feet of thick bedded (10 to 12 inches) limestone suitable for building purposes. Traces of petroleum are found in the corals and other porous parts of these beds. Below the village Mr. James

Bremner is carrying on extensive quarring operations on beds which are higher (?) than the above. The quarries are not opened to any depth as, at about seven feet, a water-bearing stratum is cut which renders operations below this level more difficult. The stone being quarried is more massive than at the upper quarries and shows less petroleum and fewer fossils. This rock also makes a good lime, of particular value for chemical purposes owing to its freedom from magnesia :

Assay of limestone from the Bremner quarries :

Water	0.55 per cent.
Silica	0.46 "
Alumina	7.42 "
Ferric oxide	1.50 "
Calcuim oxide	49.97 "
Magnesium oxide	trace

About 25 men are employed in the various quarries at Beachville.

Returning to Paris and continuing the section northward, we find surrounding Paris rolling hills of glacial detritus bearing isolated boulders of limestone (sometimes of considerable size) which are collected and burned to lime at various small kilns.

Marl Beds in Dumfries.

On lots 18, 19, 20, and 21 of the first concession, South Dumfries, an excellent deposit of marl is seen in Blue lake which itself covers 10 acres, while the marl beds probably extend over 40 acres. The deposit would average thirty feet in depth of pure white marl, said to contain 98.83 per cent. carbonate of lime. The hills surrounding the lake are of moraine origin and show no stratification. Clay occurs in the hillside to the north of the pond. This location is very well disposed for the establishment of a cement plant, as a spur of 1,000 feet would suffice to put the product on the rails. Some work had been done, at the time of my visit, with the object of establishing a cement works on the property, which has been acquired by the Ontario Portland Cement Company, of Brantford, with Mr. E. L. Gould, Brantford, as president, and Mr. W. G. Elliott, manager.

From Paris towards Ayr the rough morainic deposits gradually give place to gravel beds, while from Ayr to Galt sand and gravel alternate with clay. Throughout this region are numerous marl beds, many of which will doubtless prove valuable for the manufacture of cement. A cursory inspection was given to a few of these deposits as follows :

The farm of Walter J. Reid, lot 31 in the tenth concession of North Dumfries, shows about twelve acres of marl and four acres of lake. Clay is seen on the south side of the lake, but fine sand is the predominating superficial deposit.

The farm of Mrs. McCrone, lot 29 in the eight concession of North Dumfries, contains ten acres of lake and ten acres of low land covered by marl. Close to the shore bottom could not be obtained in a continuous mass of marl with a 16-foot pole. The lake is very deep, but notwithstanding this objection a very large quantity of accessible marl doubtless exists here. Another lake lies to the south and west ; about thirty acres of low lying land intervenes. I have no doubt that this tract is largely composed of marl. Clay does not appear to be plentiful in this vicinity, light land with many stones being the prevailing soil.

A small lake of three acres with marl is seen to the northwest of this point on the farm of Mr. Taylor, while southward, on the property of Robert Easton, there is an excellent deposit in and surrounding a lake of ten acres bounded by low land, said to show plenty of clay.

A glance at the township plans of this vicinity will impress on the reader the large number of small spring-fed lakes in this region ; while it was impossible to visit more than a few of

these, it is extremely likely that they are of the same nature as those seen, in which case we have here numerous sites for the manufacture of that product for which the demand is increasing with strides and bounds—Portland cement.

Borings at Stratford and Guelph.

Continuing northward from Ayr, via Dundee, no exposures were seen, the country being rather uneven with light stony land of morainic origin. At about the point where the road from Dundee joins the main line to Hamburg the character of the country changes, the rough morainic deposits giving place to more level clay soil, which continues as far north as the section was carried, that is to Stratford and St. Marys. Some years ago a well was sunk at Stratford in the hope of obtaining gas; the following record was kept, which unfortunately is of doubtful interpretation:

	feet.		feet.
Drift	143	Slate	40
Limestone	90	Limestone	716
White flint	117	Medina	368
Limestone	38	Hudson River and Utica	676
Flint	58	Trenton	40
Limstone	100		

Total ..... 2,386 feet.

A record has also been obtained from a boring made at Guelph where we find:

Drift	15
Blue slate	50
Niagara and Guelph	100
Gray slate	5
Red slate	5
Gray slate	10
Blue slate	2
Clinton	10
Blue slate	20
Hard limestone	7
Blue shale	9
Medina sandstone	12
Blue shale	7
Red Medina	400
Hudson River	500
Utica	300
Trenton	110
Total	1,562

From the top of the Trenton to the surface of the rock at Guelph is therefore 1,437 feet. Assuming the thickness of the various strata to be approximately the same at St. Marys we get the surface rock at Guelph to lie in the middle of the 716 feet of limestone recorded at Stratford. This would make 323 feet of Guelph limestone removed by erosion at that place. On the other hand if we consider the 50 feet of blue shale as analogous to the 40 feet at Stratford then the 716 feet represent the Niagara and Guelph, showing therefore a considerable increase in thickness towards the west. At Guelph this slaty bed lies 15 feet down, and at Stratford 546 feet. Subtracting these figures from the elevations of the respective places (1057 and 1207 feet above the sea) we find that the dip of the beds is 381 feet in the 40 miles separating the two

places. This however must not be considered the true dip, which is in a more southwesterly direction and would therefore be somewhat greater. Quite recently a well was sunk at St. Marys, the record of which, whether by accident or design, seems to have been very carelessly preserved. The following notes are due to Mr. Thomas Cox, who had a certain interest in the drilling :

Water at 550 feet.
Brine at 985 feet.
Sulphur water at 1185 feet.
In gray Medina sandstone at 1510 feet.

Quarrying in the Corniferous at St. Marys.

The heavy deposit of drift reaching, as above noted, a depth of 143 feet at Stratford, is cut by the Thames at St. Marys, exposing the underlying limestones. The first outcrop of rock is seen about three miles east of St. Marys, where a tributary stream has eaten through the drift. A small quarry has been opened and about ten feet of thin bedded, jointed, whitish gray limestone exposed. The fossils are very poorly preserved ; among them were noted *Athyris spiriferoides* and *Spirifer gregaria*.

Lying north and east of the town of St. Mary's, and at some elevation above the river, are a series of whitish limestones very similar to those on the Stratford road, but containing even fewer fossils The two beds are doubtless analogous and represent the highest members of the Cornifero us as here exposed. The rock is being extensively quarried and burned by Mr. J. Slater. An analysis follows :

Water	00.14	per cent.
Silica	2.32	"
Ferric oxide	0.88	"
Alumina	0 17	"
Calcium carbonate	94.24	"
Magnesium carbonate	2.10	"

On the south side of the river at a distance of about a half mile the so-called Horseshoe quarry is being opened. Here the rock dips perceptibly to the west and is somewhat fractured by local folding. The upper bed is a thin limestone weathering red and filled with shells of *Chonetes hemispherica* and other species of the same genus. In less abundance are found *Spirifera gregaria*. Below this bed friable silicious limestones occur with *Conocardium trigonale* which seems to be more or less confined to this bed. On descending, more heavily bedded rock is found in which, at a depth of four feet, specimens of the rare species *Panenka grandis* were obtained. Along the river south and west of the Horseshoe quarry extensive operations have been carried on for years. Apparently the above described *Chonetes* bed is about eight feet down at these quarries, being overlaid by a series of shaly friable rocks bearing *Orthis* (*Rhipidomella*) *livia*, *Athyris clara*, *Athyrias maia*, *Lucina elliptica* and other lamellibranchs. Two feet lower is the bed which, as at the upper quarry, is characterized by the presence of *Panenka grandis*. It consists of a heavy blue limestone overlaid immediately by a thin bed. The *Panenka* limestone gives on analysis the following result :

Water	0.41	per cent.
Insoluble residue	4.49	"
Alumina	0.47	"
Ferric oxide	1.19	"
Calcium carbonate	90.22	"
Magnesium carbonate	2.09	"

Below the Panenka bed is found a stratum characterized by the nautiloids *Gomphoceras eximium*, *Gyroceras sp.*, *Nautilus sp.* and by *Aviculopecten princeps*. A very distinct horizon is marked by an abundance of fucoids lying at a depth of about 14 feet, below which the rock is more heavily bedded, of a bluer color and decidedly less fossiliferous. Although a few corals such as *Zaphrentis prolifica*, *Favosites hemispherica*, etc., are met with at St. Marys[2], the general series is not comparable with the highly coralline rocks to the southward.

List of fossils collected at St. Marys :

Favosites hemispherica,
Zaphrentis prolifica,
Spirifer duodenaria;
" *gregaria*,
" (*mauni?*)
Atrypa reticularis,
Leptaena rhomboidalis,
Athyris clara,
Athyris maia,
Sropheodonta ampla,
Strophеodonta demissa,
Strophеodonta inæquistriata,
Chonetes hemispherica,
Chonetes sp.,
Aviculopecten princeps,
Panenka grandis,
Paracyclas elliptica (*Lucina*),
Vanuxemia Tomkinsi,
Three undetermined lamellibranchs.
Conocardium trigonale,
Platyceras ventricosum.
Platyostoma sp.,
Nautilus (*Ohioensis?*),
Gyroceras (*cyclops?*),
Gomphoceras eximium,
Orthoceras sp.,
Cyrtoceras sp.,
Sea weeds.

The Lower Helderberg or Water-lime Formation.

Summing up the observations in the region described so far, we find that the lowest rock exposure is the so-called waterlime belonging to the Lower Helderberg formation of the New York geologists. It is mentioned in the Geology of Canada, 1863, page 354, as entering Canada opposite Buffalo and as being exposed at various points, of which the particulars may be found as above cited. In the Report of the Bureau of Mines, 1902, page 34, Professor Coleman gives an analysis of this rock ; his results, as well as others prepared for this Report and already mentioned in previous pages, are tabulated below :

Locality.	Lime.	Magnesia.	Alumina & Iron Ox.	Silica.	Water.	Carbonic Acid.
Lot 28, Con. II., Humberstone	25.02	16.81	4.94	12.32	0.06	39.13
Best's Quarry	20.09	14.41	25.26	4.14	0.55	....
Quarries south of Hagersville	26.61	17.49	4.20	3.44	0.35	44.96 loss.
Springvale	31.58	17.79	5.18	3.69	0.15	44.73 loss.

The reader should compare this list with the analysis of the famous Rosendale cement rock quoted by Professor Coleman in the Report above mentioned. It will be seen that all these analyses agree quite closely except that of the rock from Best's quarry, which shows an unusually high percentage of alumina. This rock seems not to attain a greater thickness than 40 feet, and is overlaid by the Oriskany sandstone which presents two varieties as already mentioned, a hard quartzite-like example, and a more friable sort composed of rounded grains

[2]. Geo. Sur. Canada, 1863, p. 377.

of quartz with some feldspar. This rock is found just west of Port Colborne where it forms a bed not over a foot thick. The position here, which is distinctly between the Waterlime and the Corniferous, is maintained, but with increasing thickness, towards the north, reaching south of Hagersville a maximum of about 20 feet. However, if we have rightly interpreted the well at Stratford, a thickness of 117 feet is attained at that point.

The Corniferous a Varied Series.

Our knowledge of the series of limestones lying above the Oriskany sandstone to which the name Corniferous has been given is most meagre and unsatisfactory. The term Corniferous has been applied to a whole series of strata the fossil contents of which show most striking differences, e.g. the coralline rocks of Hagersville and vicinity, the nautiloid and lamellibranch strata of St. Marys, and the rocks characterized by the very much mixed assemblage of fossils from Amherstburg described by the Rev. Thomas Nattress in the last Report of the Bureau of Mines[3]. The writer does not wish to be understood as quarrelling with the name Corniferous, although, as Sir William Logan himself says, it is not exactly comparable with the American series of the same name, but desires merely to emphasize the lack of knowledge of the subdivisions of these rocks, call them what we may.

The natural conformable succession of rocks westward from the Niagara outcrops at Hamilton lies through the Barton beds to the Guelph dolomites. The non-fossiliferous Onondaga and the so-called Waterlime with its overlying Oriskany form a very dissimilar and non-continuous series of sediments. Whether these deposits follow the Guelph or are more or less contemporaneous, I believe there is no evidence to decide ; it seems likely however, from the nature of the Onondaga, that shallow enclosed seas prevailed, in which were deposited the characteristic gypsum, salt and shale. In North and South Cayuga, in Walpole and in Townsend as well as in other townships a distinctly cherty, coralline layer overlies the Oriskany sandstone and attains no great thickness. At Hagersville this same coral layer seems to be directly superimposed on the Lower Helderberg, as a drill hole 87 feet deep failed to reveal any sandstone. (Compare the analysis of the bottom rock at Hagersville with that of the "Waterlime.") At Woodstock the coral layer is more feebly represented and underlies a series of rocks richer in brachiopods, which series is covered at Beachville by the peculiar white rock already described as being characterized by the presence of fucoids (sea weeds) and small examples of *Athyris spiriferoides*. The series at St. Marys is quite different, the coralline layer not being exposed, although of course some corals occur as is the case in all these rocks. This series has already been described ; in all probability it lies above the others, but accurate measurements and complete collections of fossils are required to decide the point.

Fossiliferous Beds of the Hamilton Formation.

The heavy deposits of drift continue westward from St. Marys, being represented by rolling boulder clay, interrupted in places by deposits of gravel. After passing Lucan, some morainic hills are encountered, which however soon give place to remarkably level clay land. No rock exposures are seen over this entire region until the famous Hamilton outcrops at Thedford are reached. The excellent series of rocks rendered accessible at this point have become classic in the annals of geology, as they form an exceedingly rich hunting ground for the fossils characteristic of the Hamilton formation. So much has been published on the fauna of these rocks that it would be superfluous for the writer to deal with that side of the matter here. An idea of the richness of the remains may be gathered from the fact that, in spite of time spent in travelling, he succeeded in three days in collecting over a thousand specimens represent-

[3]. The Corniferous Exposure in Anderdon, by Rev. Thos. Nattress, B.A.; 11th Rep. Bur. Mines, pp. 123-127.

ing 110 species. Some attempt was made by the writer to work out the fossil contents or at least to establish the characteristic fossils of the various layers, but he is glad to find that this had been done by others in greater detail than his time would permit. Professor A. A. Wright during the summer of 1900 made a complete series of measurements, and during the season of 1901, Professors Shimer and Grabau made exhaustive collections. The results of their work are published in a valuable bulletin of the Geological Society of America. [4]

It may be well however to describe briefly the places at which exposures are to be seen. The first is at Thedford, where the Grand Trunk railway cuts through the series to a depth of forty feet. At this point *Spirifer pennata* (*Spirifer mucronata* var. *Thedfordensis* of the above authors) is very abundant, as well as bryozoa of different genera. This section is also much the best for the collection of *Athyris spiriferoides*, *Goniatites uniangularis* and *Cyrtina Hamiltonensis*. Shimer and Grabau mention 39 species from here, mostly bryozoa and brachiopods. A second exposure is found three-quarters of a mile north of the railway cut in what are known as Hanniford's fields. A heavy limestone with crinoid stems is here overlaid by a soft shale from which weather out numerous specimens of corals which may be picked up in perfect condition on the surface of the ground. Particularly noticeable among the 12 species of Shimer and Grabau are :

Cyathophyllum Halli,
Cyathophyllum tenuiseptatum,
Zaphrentis prolifica,
Favosites placenta=F. nitella,
Favosites Billingsii,
Alveolites Goldfussi,
Cystophyllum Vesiculosum,

Besides the corals 14 or 15 species of brachiopoda occur, of which the most important and numerous are :

Spirifer pennata,
Cyrtina Hamiltonensis,
Pholidostrophia Iowaensis,
Rhipidomella Vanuxemi,
Rhipidomella Penelope,
Atrypa reticularis.

Fragments of bryozoa and joints of crinoids are also abundant.

The third section is found on a small stream west of the above and presents practically the same series of rocks, reaching however a greater vertical extent. The top is the decomposed coral shale underlaid by limestone in several layers, beneath which is 15 feet of blue clay. This material makes excellent drain pipes and brick of a red color, while the overlying boulder clay burns white. The blue Hamilton shale is filled with nodules of a harder nature which prove objectionable on account of their resistance to the action of both fire and water. An analysis of one of these nodules follows :

Water	0.57 per cent.
Silica	17.67 "
Alumina	10.59 "
Ferric oxide	4.25 "
Calcium oxide	32.84 "
Magnesium oxide	traces. "

The nodules would seem to owe their origin therefore to concretions of lime which has entered into chemical union with the elements of the shale. The assemblage of fossils is, as would be expected, about the same as in Hanniford's fields and the railway cut.

OTHER EXPOSURES OF HAMILTON FOSSIL BEDS.

Probably the best section of these Hamilton rocks is to be seen in Rock Glen, where a small tributary of Aux Sables river has exposed 70 feet of the series. Another excellent

[4]. Bulletin, Geol. Soc. Am., Vol. 13, 1901, pp. 149-186.

section of the lower portion is seen at Marshall's Mills on the Aux Sables, about a mile above the mouth of Rock Glen. Finally, small exposures are met with in the valleys of creeks cutting down to the rock on the road from Thedford to Arkona. Particularly may be mentioned a good section at "No. 4 hill." At Stony Point, lake Huron, the heavy limestone is exposed for a short distance along the shore. As this is not mentioned by Shimer and Grabau a list is added of forms collected here :

Rhipidomella Penelope,
Rhipidomella Vanuxemi,
Stropheodonta demissa,
Strepheodonta concava,
Roemeria ramosa,
Phacops rana,
Atrypa reticularis,
Spirifer pennata,
Chonetes lineata,
Pterinea flabella,
Limoptera macroptera,
Polypora tuberculata,
Fenestella sp.,
Ancyrocrinus bulbosus.

An analysis of this limestone is given below, as well as one of what is probably the same bed from Thedford :

	Stony Point. per cent.	Thedford. per cent.
Water	0.14	——
Silica	0.78	1.51
Alumina	0.13	2.19
Ferrous oxide	1.56	2.49
Calcium oxide	51.74	51.26
Magnesium oxide	0.46	traces.
Sulphur trioxide	1.27	——
Carbonic acid and loss	43.02	41.10

It will be observed that this stone is practically free from magnesia, although the sulphur may prove objectionable for certain chemical purposes.

Below are shown side by side the sections of the Hamilton formation at Thedford as prepared by Professor Wright and by Professors Shimer and Grabau. My observations, made a year later, can add nothing to the systematic measurements of these geologists. For detailed information as to the fossil content of the various layers the reader is referred to the publication already cited.

Bed No.	Shimer and Grabau.	Feet.	A. A. Wright.	Railway cut and Hannford's fields, feet.	Rock Glen, feet.	No. 4 Hill, feet.	Marshall's Mills, feet.
9	Calcareous Ceratopora Bryozoa beds	10	Encrinal limestone	2	4	6	....
8	Shales with Spirifer beds at base	8	Nodular shale	1	6.6	4.1	....
7	Argillaceous limestone	1.5	Upper argillaceous limestone	14	2	1.6	....
6	Blue calcareous shale	18	Upper blue shale	37.6	37.9	29	....
5	Calcareous shale and slaty blue limestone	6	Lower argillaceous limestone	1.3	1.3	1.3	1.3
4	Argillaceous shales with Styliolila	1.5	Coral beds	.....	3.9	3.9	3.9
3	Coral layers	3.25	Rugose limestone	.....	2.6	2.6	2.6
2	Encrinal limestone	3	Lower blue shales	...	20	20	20
1	Blue shales, lower, with calcareous fossil beds	30	Calcareous blue shales	.....	15	15	15
	Total	81.25 feet.	Total	84 feet.			

The various shales, particularly those free from fossils, make excellent tile and coarse pottery. Mr. Jas. Cornell has for years carried on this industry at the exposure on the creek

north of Thedford. Rock Glen and Marshall's Mills both furnish equally good sites for this purpose. The limestones are practically free from magnesia and alumina, making splendid lime and the even-bedded portions are easily quarried for building stone. Two miles north of Thedford a gravel ridge is crossed, beyond which a distinct beach is seen (Algonquin beach) representing the shore line of lake Huron in post-glacial times.

The Kettle Point Concretions.

To complete the trip a visit was paid to the famous region at Kettle Point where the peculiar spherical concretions, in some instances as large as four feet in diameter, are found embedded in the Genessee shales which are exposed for about 15 feet. These shales are even-bedded and highly bituminous, so much so that if once ignited in large quantities they will continue to burn indefinitely. An analysis of these bituminous shales is given below ; the specimen was taken two and a half feet from the equator of one of the larger kettles.

Water	0.49 per cent.
Silica	54.44 "
Alumina	19.77 "
Ferrous oxide	2.84 "
Ferric oxide	3.16 "
Calcium oxide	3.11 "
Magnesium oxide	trace.
Carbonic acid	2.44 "
Sulphur trioxide	8.98 "
Bitumen	11.21 "
Loss on ignition	14.15 "

While constituting a geological phenomenon, this exposure does not merit further consideration in a report of this nature. A day was spent in examining the Kettles and in making certain measurements which may, at some future date, form the substance of a paper on the subject.

The analyses given herein, with the exception of those of the Beachville rock and that from Stony Point for which I am indebted to Mr. A. G. Burrows, were made under the direction of Mr. J. Walter Wells, late Provincial Assayer at Belleville.

Acknowledgments are due to the following gentlemen for assistance and valuable information while in the field : Rev. Hector Currie, Thedford; N. H. Cowdry, Esq., Waterford; D. McNeil, Esq., St. Marys.

UP AND DOWN THE MISSISSAGA.

BY L. C. GRATON.

In June 1902 I was appointed by the Director of the Bureau of Mines geologist to accompany the surveying party sent out by the Crown Lands Department in charge of Mr. Alexander Niven, O. L. S., which was to run a series of lines along the upper reaches of the Mississaga river in the district of Algoma. I reached Toronto on 27th June, and joining Mr. Niven and a portion of the party, left on 1st July for Biscotasing station on the C. P. R. main line, where we arrived the following day. The remainder of the party having joined us on the way, we numbered seventeen all told.

Starting Point of The Expedition.

The starting point of the survey was to be the 36th mile post of the base line run by Mr. Niven the winter before, i.e 50 miles west of Straight Lake station on the C.P.R. At the end of the 36 miles, Mr. Niven had turned north and run what is called his 1st meridian. 1902, to the C.P.R. at Woman River station. This corner or starting point, then, lay about 50 miles rather east of south from Biscotasing.

At this station we took our supplies, and starting on 3rd July, proceeded by canoes up the Spanish River route, over the divide into the head waters of the Mississaga, and on to Upper or New Green Lake, where there is an abandoned post of the Hudson's Bay Company. Continuing, we kept to the Mississaga course till within a few miles of where it crosses Niven's 1st meridian; there we turned south, and by lakes, creeks and long portages cut by ourselves, we reached the starting point on 10th July.

Mr. Niven was to prolong westward the base line already begun until it should reach the northeast corner of the Township of Curtis, a distance of 54 miles. He was also to run a line, to be called the second meridian, from the 66th mile of this base line, or 30 miles from the season's starting point, north for 18 miles, and then turn eastward for 30 miles to join his 1st meridian.

My instructions were to study as carefully as possible the geology of the country on either side of these lines, and to be especially on the lookout for mineral deposits of economic importance. I was also to note and describe the character of the country—its topography, soil, climate, flora, fauna, etc. Mr. Niven being head of the party, I was subject to him in all matters pertaining to the conduct of the expedition.

General Method of Procedure.

Before leaving the main waters of the Mississaga, it was decided that I should follow along with the line for 30 miles to the starting point of the second meridian. This I did, making trips alternately to the north and south of the line on every day possible, usually in company with an Indian as guide. In general I would start from camp in the morning, strike perhaps south for nearly half the day, turn west for about a mile and a half—an average day's run on the line—then turn north and reach the line at about the point chosen for that night's camp. It was usually advantageous to keep to the ridges and hills as much as possible, both on account of the better view they afforded, and the greater likelihood of finding rock exposed there than in the valleys. The country is exceedingly rough and affords difficult passage even to one carrying no load. In the "green bush" densely wooded tracts, as a rule, give way only to lakes, swamps, or steep rocky hills, and in country that has been burned, progress is made extremely arduous by the network of fallen logs, so that a walk of seven to twelve miles

was about all that could be accomplished in a day. Now and then a level sandy plain half a mile or a mile across, usually covered with jack-pine, was a welcome occurrence.

At different times during the summer I had the services of George Friday and William McLean, Indians from the Temagami Reservation, both of whom were efficient and obliging.

The journey from Biscotasing to the starting point was entirely through Laurentian country; and it may as well be stated at the outset that all the lines of this summer run through country underlain, with one possible exception, by the Fundamental Gneiss.

Topographical Features of the Region.

This region is a portion of the great protaxis of the continent, and so forms part of the old dissected Archæan plateau. That this is true can be seen by noticing that from the top of a hill the sky-line is even; and although the country is decidedly rugged, no great differences of level occur, five, six or seven hundred feet being the greatest. "The landscape is of a very pronounced type, which, while lacking on one hand the grandeur and sublimity of the great mountain regions of the world, and on the other the tranquil beauty of the well-cultivated lowlands, has a certain rugged beauty of its own." In the aspects of its relief this country presents a monotonous succession of great and small knolls or bosses, between which are found either drift-filled valleys or lakes both large and small. This mammillated or undulating surface, which is so characteristic of the Laurentian, can be seen especially well where forest fires have stripped the hills of their vegetation and left the bare rocks exposed.

Practically no generalizations can be made as to the topography. The covering of drift is so thin, and the underlying rock so resistant and massive that the physiographic features are quite immature. Except very near to the main water courses streams are found flowing in any and all directions; lakes may occur anywhere, and at practically all levels, and rapids are exceedingly numerous, although owing to the smooth and rounded surface of the rocks falls are not frequent.

Peculiarity of Hill Profiles.

There is one very striking exception, however, to this apparently lawless topography. The hills are decidedly smoother, and the ascent more gradual on the north side than on the south. Steep cliffs, sometimes several hundred feet high, may be found at the south side of some of the hills, while almost invariably the north side is a slope, gentle and usually drift-covered. This has a marked effect in two ways upon the outlook from the hill-tops. The view to the north is very often obscured or shut out entirely by the trees which find soil and footing on that slope, while to the south the view is unobstructed; likewise whenever one can see to the northward the country appears very rough and rocky looking at the south side of the hills, while southward the elevations seem to have a more regular form, and are usually wooded. This difference in the north and south sides of the elevations is also well seen in the small rocky islands which protrude from the surface of lakes. Approaching one of these from the north it is seen to rise gently out of the water, and suggests by its form a huge turtle back. When as the side of the island, however, so that a profile can be had, it is striking to see how abrupt it the south side in comparison.

This phenomenon is almost universal. It can be explained as the effect of the enormous mass or masses of ice which during the glacial epoch moved down from the north, and planing off and passing up on the north side of the hills, fell away rapidly and with comparatively little erosive action on the south side. At the foot of these precipitous southern slopes there is often a heap of rock fragments which, in so far as I could make out, were simply talus piles of local origin—derived from the hill at whose base they lie—and not a dumping of material transported by the glacier, as has been suggested. I found no marked examples of "crag and tail," nor of combed drift.

The Starting Point and Westward.

In the vicinity of the starting point there is little of interest except a patch of good pine. Small lakes are numerous, but connected, floatable water courses are few. The county is timbered with balsam, spruce, white birch, jack-pine, and pine, in order of their abundance. Drift covering is general, but here and there rock is exposed and seen to be the typical Laurentian granite, either massive or gneissic, rich in orthoclase, and as a rule poor in basic constituents. It is not infrequently cut by intrusions of greenish-gray diabase, either as dikes or irregular masses. With minor variations, this description applies to the greater part of the country traversed.

At the 42nd mile we came to a fine lake of clear water about one and a half miles long and one-eighth to half a mile wide, which we named Otter lake. It is emptied by a small stream flowing southwesterly, which may be one branch of the White river. A series of portages and lakes and a creek lead seven and a half miles almost north to the Mississaga at the most southern point of a deep bend which the river makes to the south. Half a mile south of this lake, the end of one of P. L. S. Herrick's meridian lines, run in 1857, was found and continued to the base line.

On the White River.

At 46 miles, the line crosses the southern end of a long narrow lake, fed by a creek from the north, and drained at its southern extremity by a creek of sufficient size to carry canoes. Turning to the west, the creek follows close to the line, and finally, after several portages over boulders, crosses to the north side of it at 48½ miles. Just east of this, the stream passes over a direct fall 50 feet high (aneroid), above the fall proper being a steep rapid of 12 feet descent in a distance of 100 feet. A protruding mass of rock at the foot of the rapid divides the fall into two parts. On the north side, a cliff of Laurentian gneiss rises 260 feet (aneroid) above the top of the fall, and from its brink the line crosses diagonally to the south side of the stream. The south bank is also rocky, but the slope is such that it is partly wooded. A few feet south of the verge of the falls is an irregular gulch about 10 feet wide and 15 feet deep, running parallel with the stream ; it may represent a former channel of the river, and at any rate is certainly filled in time of high water. In its bottom there is exposed a quartz vein about 15 inches wide, dipping 75° N.E., and holding a little pyrite. The hanging wall is of granite, while the foot wall is a 3-foot dike of diabase, which at the contact with the vein has had its structure somewhat changed. Fragments of quartz on the flat rock above, and the presence of cuttings along the near-by rapids indicate that the vein has been observed by Indians. A sample of the most promising part of the vein, however, when examined by the Provincial Assayer, showed only a trace of gold.

We cut a 10-chain portage on the north side to avoid these falls. Going down stream I took notes as follows :

20 chains (from falls) : Steep rapid of 15 feet fall, portage 5 chains on north bank.

35 chains : Rapid, 8 feet fall, portage on north bank, 3 chains. Here were seen two beaver houses and several beavers.

45 chains : Shallow rapid, portage south side, 10 chains. Line crosses at 49th mile at foot of this portage. Just above, a shallow rapid stream 15 feet wide comes in from N. 50° W. ; a mile from the main stream its course has veered to east and west.

From this point the river becomes wider and shallower, small rapids barely passable for a canoe being very frequent. Turning south it flows for half a mile, passing over a recently built beaver dam on the way, into a small, round lake. From this it emerges on the east side, and

was last seen flowing in a southwesterly direction through a long, deep valley. One of the Indians of our party, who had been a considerable distance up the White river, believed this to be one of the main upper branches of that stream, and taking into account the most northern point at which the White river has been mapped—in township 163, by Mr. Cozens in 1898—this conclusion is without a doubt correct.

An Intrusive Area in the Laurentian.

Climbing a long hill from the river, on which grew some very good white pine, we soon entered a recent brulé which continued for almost two miles. At 51 miles the line crossed the southern end of a pond, on whose eastern side the characteristic Laurentian granitic gneiss was seen, but the west side exposed a grayish-green, rusty weathering, basic looking rock, differing in appearance from the ordinary diabase to such an extent that I sought to determine its boundaries. It was traced northwards for perhaps three-fourths of a mile. On the shore of the third pond from the line a large mass of it was found, planed smooth and showing glacial grooves running S 18° west. The mass here dipping 30° to the south passed under a pink, fine-grained, granitic rock, probably part of a large dike, which was exposed for 40 feet. No more of this basic intrusion was found to the northward. A quarter of a mile farther Laurentian gneiss was seen *in situ*. Eastward the mass was followed to the eastern arm of Bonanza lake, and a little south of the line, near a creek flowing into it, this rock forms a wall 15 feet high and 50 feet long. Farther south the ground is low and swampy, and when rock is next seen (a mile from the line) it is the ordinary gneiss. Between the two arms of Bonanza lake Laurentian is also exposed, so it appears that this intrusive mass is lenticular in form, about a mile and a half long and three-fourths of a mile wide, the long axis running north and south, or possibly a little east of north. Actual contact with the Laurentian was nowhere observed. A description of this and other noteworthy rocks will be given on a subsequent page.

Bonanza is the most eastern of a chain of three lakes draining westward by a stream, often floatable, which follows the line more or less closely for about nine miles, and finally empties into Bella Donna lake.

Red Pine, Spruce and Jack Pine.

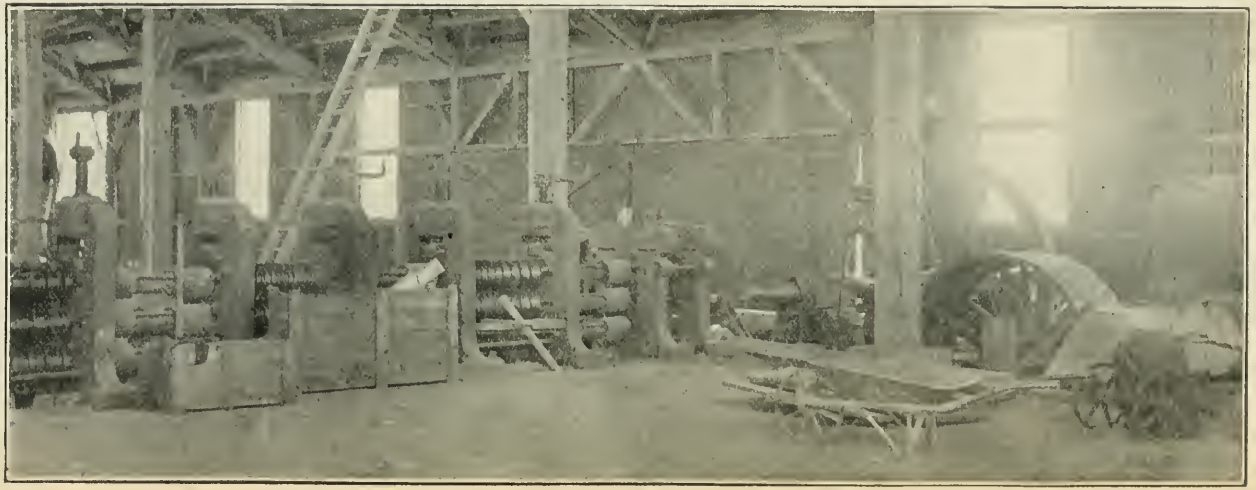
A six-mile tramp north from the line at 54½ miles brought me within sight of the Mississaga river just below O'd Green lake. Two and a half miles from the line there is a good-sized tract of excellent red pine ; north of this brulé begins and reaches to the river and beyond. The range of hills just south of the river at this point are composed of pink porphyritic granite, and contain large elongated crystals of orthoclase, with parallel arrangement, in a base of finer grained quartz and feldspar. Some of the orthoclase individuals are three inches long by one inch wide.

A small lake, which the line crosses at about 55½ miles, lies in a valley seven or eight miles long and a mile wide, running nearly north and south, and thickly covered with spruce five to ten inches in diameter. Blue lake, two miles long and a mile wide, lies in this valley three miles south of the line.

On The Rapid River.

South of the line at 60 miles, a recent fire has completely cleaned up a jack-pine plain along what is probably the upper part of Rapid river ; near the line and north of it, however, the country is wooded. A trapper's portage from Rapid river crosses the line at 60½ miles, and leads to a beautiful small lake which we named Bella Donna, from these words carved on a tree near it. It drains northwesterly, probably into the Mississaga. From its north end, a series of lakes and well-travelled portages leads 5½ miles nearly north to the Mississaga at Minissinaqua lake.

Collingwood steel works ; General view of plant.



Collingwood steel works ; semi-continuous Belgian rod mill.

First falls in the "Tunnel," Mississaga river.

Radnor iron mine, Grattan township.

A glimpse of the "Tunnel," Mississaga river.

Up and Down the Mississaga; Burned country above Old Green lake.

Mississaga Indians.

On the Wenebegon river.

A prominent hill three miles north of the 63rd mile post was rather interesting geologically. It held a great mass of gray fine-grained granite, probably intrusive, about which were found bands and layers of gneiss, quite different from the ordinary foliated granite usually met with in this region ; the whole cut by almost innumerable large and small veins of pegmatite. Acid, basic and intermediate bands of the gneiss alternated with each other.

South of the 66th mile, Rapid river was again seen where the driftwood had been cut to allow passage of canoes. At 66½ miles the line entered a brulé now growing up to jack-pine, which continued westward to the Mississaga. Gravel river was crossed near the 67th mile.

On the Meridian Line.

At the 66th mile post, or 30 miles from the season's starting point, the party was divided into two bodies ; one, under Mr. Rundle of the School of Practical Science, was to continue west to the Mississaga, while the main body under Mr. Niven turned north on the meridian. It was decided that I should accompany the latter.

A little south of the 3rd mile post, the north line crosses a narrow lake of clear green water, with sandy bottom, and fed by several large springs which emerge from the base of the hill at the south. This we called Clearwater lake ; it empties itself easterly by a small stream into the much larger Beaver lake, which is almost completely shut in by rocky hills, and which drains north into the Mississaga. On the north side of Clearwater lake rises a steep hill, 500 feet high, from which an excellent view can be had of the country to the east and south. Near its top is a small quartz vein, which, however, appeared barren. From here to the river, occasional patches of good white pine occur.

The Mississaga River.

The line crosses the Mississaga at 5 miles, about a quarter mile below the mouth of the Wenebegon. Here the river is three chains wide, the water dark in color, and the current sluggish ; the banks are low and muddy, covered with cedar, black ash and elm, and black alder bushes, and completely honeycombed by musk-rat holes. Just to the west, the river turns north and for two miles keeps close to the line, touching it at three places. For this distance, the line passes through a very good tract of pine.

AUBREY OR AKIKENDA FALLS.

At 7 miles the meridian crosses to the west side of the river, just above a very bad rapid through a gorge in the Laurentian gneiss. About a quarter of a mile farther on, the line comes within a stone's throw of the river again ; and just at this point the rapid gives way to fall of 60 feet at one leap, called Aubrey falls, to which the Indians have given the name Akikenda, meaning perhaps, "Kettle Falls."

Just above the rapid is the beginning of a depression which represents either an old channel of the river, or more probably a second channel in time of high water. It passes through a small lake, and by a deep cleft, reaches the river below the fall. The descent in this is much more gradual than in the river, and it seems probable that with a comparatively small expenditure it could be made to float timber safely.

The country on this side of the river has been burned ; and a half-mile portage leads over the bare rock to the river below the fall, cutting off a considerable bend. The line crosses finally to the north side of the river between the fall and the foot of this portage at about 7½ miles.

Just opposite the fall, on the west side of the river, there is a quartz vein about six inches wide which in places carries small lenses of specular hematite, and a claim for 320 acres, including it, has been staked. The name of the claimant, written on the blaze of a dead tree, is now illegible. Some rods farther north, on a quartz vein about three feet wide which can be traced southeasterly for nearly a quarter mile, but in which no minerals of value were found, a

claim for 320 acres has been staked by one Jas. Halleck. About a half mile below the falls, on the west side of the river, a nearly horizontal quartz vein about a foot wide carries small amounts of copper pyrites. Three hundred and twenty acres are claimed here by William Black and others, of Sudbury. There appears to be little of promise—unless it be the prospect of future water power—in any of these locations.

CANOEING DOWN STREAM.

After carrying the line to the 8-mile post we returned to the river and started down it in canoes. For a couple of miles the river is broad and smooth, flowing in a wide gravel or mud valley, but then narrows up suddenly and runs over rock as a short, steep rapid, for which there is a good portage on the east side, or at low water over a rocky island in the middle of the channel. Within a mile another similar rapid occurs, with portage also on the east bank. Open water then continues for a couple of miles, when a rapid is encountered which extends probably one and a half miles over a bed of boulders There is no good portage around this rapid. At high water it can be run without danger, and during the dry season also, if care is taken. On the up-stream journey we waded and drew our canoes up after us.

Perhaps three miles from the foot of this rapid the Aubinadong or Obabica river enters from the north. Here burned rocky hills begin to rise on both sides, the brulé on the east being continuous with that beginning near the 66th mile of the base line. Three miles below the Aubinadong an Indian cache and winter camp stands at the head of a series of portages and lakes which finally reaches the river again ten or twelve miles below. Two miles farther we came to a bad rapid with a 25-chain portage on the east side, and a quarter mile below this, just south of a seven-hundred foot hill on the west, we came in with that portion of the company which had been continuing the base line from the corner at the 66th mile post. The river crosses this line at the 74th mile.

Leaving the main party, which was to continue the base line, I started down the river with George Friday. Our map of the river, which had been made some time before, having proved unreliable in several cases farther up, I thought it advisable to make a plan which should extend to the township of Otter, beyond which the river has been surveyed. Since I was able to verify on the return journey the bearings and distances which I had recorded, I think my plotting may be taken as fairly accurate.

CHARACTERISTICS OF THE RIVER.

At that season, the middle of August, the water was very low, but evidence of much higher level was to be had in stranded drift wood on the banks, and scars on the trees immediately bordering the stream, inflicted by the rushing ice at flood time, could be seen fully seven feet above the existing water mark. Just at the line the character of the river changes from its general nature to the north. The valley alternates frequently from comparatively narrow, with steep rocky sides rising several hundred feet, to wide stretches through sand or gravel plains, but never are the hills far distant. The water becomes shallow, and the current very strong, while rapids occur at short intervals. An extract from my note book will serve as an illustration :

15 chains (below line)	Shallow rapid.
45 "	Rapid.
50 "	Small rapid.
65 "	Strong rapid.
1 mile	Rapid.
1 mile, 20 chains	Strong rapid.

All the intervening water is swift.

With very few exceptions the rapids were run, but when returning up stream it was necessary to portage part of our load in several instances, and even then many were too strong for us to pole up, and we were obliged to wade, drawing the canoe after us[1]. At several places where the river widened out, the water became so shallow that the canoe would barely pass, even after careful selection of the deepest part. In many of these places low gravel islands occur, showing that the river was so embarrassed by sediment where the water became shallow that deposition was necessary. Also, nearly every side stream of any size brings such a load of gravel that the main stream is unable to carry it away, and one or more islands are formed just below the mouth of the tributary.

About 3½ miles below the line, Gravel river, a shallow, rapid stream, which will not carry a canoe, enters from the east. A mile below, on the same side, is the mouth of Rapid river, a similar stream. It is said that iron claims have been staked some four miles up this stream, but time was not available to find them out.

PANNING GRAVEL FOR GOLD.

A mile farther down, on the west side, is the beginning of a gravel plain, several hundred acres in extent. It is shut in, except toward the river, by comparatively low rocky hills, and probably represents a filled lake ; it is about ten feet above the water level (20th August) and for the most part is covered with blue-berry and other low bushes, though near the river at the southern part, there is a fine grove of medium-sized red pine. Just below this, and bounding the plain on the south, a creek from a chain of lakes to the northwest empties into the river.

This plain had been reported to hold gold in placer form, and I therefore examined it carefully. In all seven lots were taken from different points along the river, and also in from the shore ; these were panned, but no trace of gold was obtained. The rocky hill bounding the plain on the northwest was examined for a short distance at its base, but no indications of veins nor anything especially worthy of note was seen.

Just below this plain, there begins on the east side, a cliff four to five hundred feet high, which the river follows for one mile and a half. As usual, it is composed of the typical granitic gneiss, cut by dikes and masses of diabase. A mile or more below where this ridge bends away from the river, a number of rock hills, on the west side, with steep flanks and rounded tops, are partially covered with good pine. Then the river narrows in between low walls of a fine grained red syenite, and passes into a broad pool below ; in the spring, the stream passes over these walls, forming a four-foot fall.

FIRST HURONIAN EXPOSURE.

We camped over Sunday just about where the northern boundary of township 188 must be, but although Friday and I searched carefully for the line several times, we were unable to locate it. Four miles below, or about two miles above where the river crosses the eastern boundary of the township of Otter, there is an outcrop on the eastern side, of greenish-gray slate conglomerate holding many pebbles and boulders of gneiss, and with it is intercalated almost horizontally, a band of red quartzite about two feet thick. Several hundred feet of this conglomerate are exposed, and its peculiar character is immediately and strikingly apparent to one going along the river. This was the most northern bit of Huronian rock which I encountered *in situ*, though I did find a pebble of the same conglomerate a little above the northern boundary of township 188. It is to be noted that in the immediate vicinity of this exposure there are no elevations of importance ; and nowhere was Huronian rock found comprising, either entirely or partially, hills of any considerable size. The probable significance of these facts will be considered under another section.

[1] Cf. A. Murray, Geol. Sur. Can., 1858, pp. 72 73.

The old survey line fixing the eastern boundary of Otter township crosses the river near a number of islands; some of the concession lines of the township can also be seen from the river. From this boundary, the river flows for about a mile between two rocky ridges 200 to 400 feet high. Emerging from this narrow valley, no rock is seen for a mile and a half, then a rounded knob of gneiss, pierced by diabase intrusions, projects into the river and causes a short rapid of about two feet fall, which can be run going down, but is too swift to come up; a portage of two chains can be made over the rock on the west side. Some two miles below this, a gravel plain on the west side, into which the river had cut, was tried for gold by panning, but no "colors" were obtained.

MINING AND GARDENING AT SQUAW CHUTE.

A mile beyond we came to a rapid and fall in Haughton township, known as Squaw chute. The river splits around a rocky island 200 yards long and 30 yards wide, running smoothly on the left or north side till at the end of the island it takes a fall of 15 feet. The "south channel" is a gorge 25 feet wide through which a smaller amount of water tumbles as a rapid; it probably owes its origin and has been largely formed by the decay of a vertical basic dike, remains of which can be seen protruding from the bottom at intervals throughout almost the entire length. The portage was formerly on the southwestern bank, and though good, was rather long, but this year Mr. M. T. Ripley built a foot bridge across the south channel, so now one can cross the island and portage in only about 5 chains.

At the foot of the old portage, Mr. Ripley, a veteran prospector, has a cabin and a garden on a copper claim which he has taken up. The soil is sandy, but contains enough clay and silt to make it loamy. Since the land was cleared only the season before, the garden is an unexpectedly good one, and grows good crops of potatoes, corn, beans, cabbage, turnips, squash, etc. Mr. Ripley is now the only settler in the township, all other attempts at agriculture having been abandoned some two or more years ago. Wagon roads lead to Thessalon and Sault Ste. Marie.

Some prospecting work has been done by Mr. Ripley and his man in two places. Near the middle of the old portage he has put down a small shaft about 16 feet deep, in a quartz vein carrying chalcopyrite. At the upper end of the island also he has been opening up a similar vein[2]. The greater part of the island is full of quartz stringers, and seems to be all vein matter, but in no place does the percentage of copper appear to be high. The surrounding rocks are syenite, quartzite, and the breccia conglomerate, the latter well exposed just below the falls.

SLATE RAPIDS AND GRANDE PORTAGE FALLS.

Not far below Squaw chute, part of the river circles round an island which must be nearly a mile long. On the west bank below the island is an extensive gravel plain; I found no traces of gold on panning its materials. Two miles farther down we came to a bad rapid, near the head of which an outcrop of compact green slate, almost horizontally bedded, occurs on the east side. Another outcrop of this slate, overlying pink quartzite, occurs two miles below; and a half-mile farther begins a long series of falls and rapids.

Here the river passes over two falls near together and enters a gorge, 50 to 80 feet deep, and 25 to 30 feet wide, and about two miles long, known locally as the "Tunnel." In it falls are frequent, separated by stretches of usually turbulent water, but in some places the walls spread out sufficiently for the stream to run smoothly, though always very swiftly. It may be

[2] Cf. A. Murray, Geol. Sur. Can., 1858, p. 226.

that the formation of this gorge is one of the effects of the crustal movement which took place in raising the Mississaga anticlinal, which Logan[3] and Murray[4] mention as following the river for several miles farther down. This gorge has always been a source of trouble to the lumber men, for the best pine has been cut as much as 15 miles above it. It is passed by a 3-mile portage on the southwest side, known as the Grande Portage, usually made by teams which can be had in the settlement of Wharnecliffe, two miles distant. This settlement is in the northern part of the township of Wells, some 15 miles northeast of Thessalon. It represents the present northern limits of civilization in the Mississaga country, but its population appears thrifty and prosperous.

COPPER PROSPECTS AT GRANDE PORTAGE.

Numerous mineral claims have been taken out in this vicinity, some for gold, but chiefly for copper. I saw several samples which contained large lumps of chalcopyrite, and one vein a mile south of the tunnel appeared quite promising. A sample which I took from here, and another from a vein a mile distant carried only slight amounts of gold. Glacial scratches near the first of these veins point S 12° W. Near the head of the tunnel, on the southwest side, is located the Chenev or Grande Portage mine, described by Dr. Coleman in 1899.[5] It is idle at present, though some manipulation of the stock rather than poor values was said to be the cause of the suspension of activity. The slate conglomerate is beautifully exposed near the shaft, while red quartzite and masses of diabase are seen not far distant. Lumps of specular hematite, some weighing probably 50 pounds, were found on the rock dump. Access to the underground workings could not be had.

UP THE AUBINADONG.

We did not go farther down the river, but started on the return journey up stream. This we found quite a different matter, and what we had done rather easily in a day and a half coming down, took us five hard days to accomplish going back. Reaching the base-line on the afternoon of 25th August, we camped that night at the mouth of the Aubinadong, and started up that river the following day.

At its mouth the river is deep, and though the current is rather strong, it gives promise of a good stream for canoeing. It soon shallows out, however, and after winding back and forth between sandy and gravelly banks for half a mile, comes within a stone's throw of the Mississaga only a short distance below its mouth. Here the rapids begin, and even where there are no real rapids, the current is so strong and the water so shallow at that season that progress can be made only with difficulty. One and a half miles from the mouth is a small rapid over granite and syenite, and a quarter of a mile from the shore is a 200-foot hill ; this was the only rock exposure which I saw. The water was very clear, however, and the pebbles bright and clean ; among them I found only acid Laurentian rock with now and then a pebble of diabase. After having gone about four miles up the river and having seen nothing of interest, not even pine, I decided not to struggle with the swift shallow water any longer, so turned and went back. Mr. D. F. Macdonald, timber estimator, who followed our party, later made his way for a considerable distance up this river. He reported one more exposure of rock—granite, and practically no pine ; finally the river split into two branches, neither of which was navigable, so he returned.

West on the Base Line.

Reaching the base line again, we left our canoe and started west with the hope of reaching the survey party before they should start back from its end. At the 76th mile we crossed

[3] Geology of Canada, 1863, p, 62. [4] Loc. cit., p. 77. [5] 8th Rep. Bur. Mines, p. 148.

the line of portages which heads from the Mississaga three miles above. Near the 80th mile we crossed a branch of the Garden river, and after an easy mile walk over a sandy plain covered with jack-pine came to the main stream, here about a chain wide, but so shallow as to barely carry laden canoes. At about the 82nd mile post the line passed into a grove of fine maple, whose tinting foliage was a welcome relief from the monotonous colorings before met with. Up to the 85th mile Laurentian exposures had been frequent, but from that point to the end of the line the covering of drift became so thick that no more rock was seen. The 90th mile post, the last of the line, was planted and connected with the northeast corner of Curtis township, a mile to the south. Exhaustion of provisions then sent us all hurriedly back to the river where we had a store of provisions.

Meridian North of the Mississaga.

While Mr. Niven was finishing the last eight miles of the base line a portion of the party which he had sent up the river had begun at the 8th mile post on the north meridian line, and was continuing the line. A narrow strip along the river has been burned, but north of this good pine begins and continues as far as I went. Fine groves of maple are not infrequent on the higher parts. The country is rough and hilly, and as usual composed entirely of Laurentian rocks. When we overtook the advance party they had reached almost to the 15th mile post. Owing in part to the good quality of the pine Mr. Niven decided to make this meridian line 24, instead of 18 miles long. Since I could not follow all the lines so determined upon in the time at my disposal, it was decided that I could cover more ground by keeping to the waterways.

Accordingly on 5th September I bade good-bye to Mr. Niven and his party, and started back over the line with William McLean as general utility man. Reaching the river we proceeded up stream to the mouth of the Wenebegon, where we joined Messrs. Macdonald and Robinson, timber estimators. They were also just about to go up this river, so we all journeyed together for part of the distance.

Ascending the Wenebegon.

The Wenebegon enters the Mississaga from the north, just below a bad rapid in the latter, as a stream about one chain wide, of clear water and moderate current. The banks are low and muddy, covered with ash and elm. The bottom is generally sandy, but in some places shows pebbles and occasionally boulders, all of Laurentian material. Rock was found exposed in only a few places along the river, though rocky hills near-by were frequent and always of granite or gneiss.

About four miles north of the mouth a jam of floodwood necessitates a short portage on the east bank. Three miles farther up Mr. Robinson and his man left us to take an old portage eastward into Seven Mile lake.

Above here the river becomes very crooked, narrower and swifter, and small rapids are frequent; rock outcrops and rocky hills are not seen. Some fourteen miles from the mouth a bad shallow rapid begins. On both sides are banks of sand and clay, beyond which are large burned plains. There is a long portage on the east side, but it was in such poor condition that it was easier to pole or draw the canoes up stream than to carry. At points where the rapid is very bad, however, the use of short portages, which have been more frequently travelled, was found advantageous. This rapid continues almost without break for over three miles. Then the current becomes calm again, and no more rapids were encountered so far as I saw the river.

From the head of the rapid the river, which has been bearing a trifle to the east, now turns considerably more in that direction. A couple of miles above, on a sandy point between the river and a large lake on the northwest side, an attempt has been made by an Indian to make a garden. The place has been abandoned, however, probably because the soil was too sandy. Burned country soon begins again, exposing rounded rocky hills. Three miles above this another log jam necessitates a portage on the southeast side.

Seven Mile Lake.

Two miles farther on I left Mr. Macdonald and started south over a well travelled portage which leads first for 50 chains over a rocky hill, from whose summit a good view of the surrounding country can be had, and it is desolate in the extreme ; all is burned and rocky except a range of hills some miles to the north, where green bush can be seen. The portage extends to a small lake, at whose southern end a short portage took us into the north end of Seven Mile lake. This is a narrow lake, broadening out at the south, set in a trough of granite and pegmatite, and really is about seven miles long. Small patches of green pine occur at intervals along the shore, and should make very good timber. A mile from the foot, a sandy point a few acres in extent projects into the lake from the base of the hills on the eastern side. On this was an Indian winter camp, and a garden growing good potatoes, although corn turnips and squashes seemed rather late. The soil is quite loamy.

Round and Peninsula Lakes.

Here we came in again with Mr. Robinson, who reported good pine on the lakes between this and the Wenebegon. We continued southward together over two portages and through a small lake into Kawaweagoma or Round Lake, a large body of irregular shape, mainly surrounded by green wooded hills. An Indian family camped on the shore of a bay on the eastern side informed us that the route into and through Gull lake and the chain to the northeast is very bad, being made up largely of shallow creeks with rapids and long portages, and as they said that all the country in that direction is burned we decided not to attempt the trip.

Leaving Round lake by a small shallow creek flowing south we came in about a mile and a half to a bay in the northeast of Minissinaqua or Peninsula lake, a beautiful sheet of water some six miles long, one of the largest lakes through which the Mississaga flows. It is set within rocky hills wooded with spruce, birch and balsam, and a little pine on the northeast side. Glacial striae on the south shore, opposite the island point S 12° W. We were told by an Indian that long ago there had been a post of the Hudson's Bay Company on the northern shore of this lake ; that before the memory of his father it had been removed to Old Green lake, some eight miles up the river. This second post was abandoned several years ago to establish the one at New or Upper Green lake, which is now also abandoned.

Old Green Lake.

From here we made our course as direct as possible to Biscotasing. Between Minissinaqua and Old Green lakes the river flows through a rocky valley which is so broad that the stream is lake-like. Two short rapids with good portages are met. Just before reaching Old Green lake we entered a flat, marshy tract, which in time of high water is flooded, and doubtless becomes part of the lake. Old Green lake probably owes little of its physiographic history to the river, for the outlet is very close to the inlet, and it appears as if a bend in the river simply happened to tap the lake. It is a good-sized and pretty body of water, and at its northeastern corner, commanding a view of its entire extent, stand the dilapidated buildings of the old trading post. The northern shore is rocky and burned, presumably by the same fire which swept the country about Seven Mile lake and to the eastward.

Coming into the river again we found it to flow for a long distance through a broad, drift-filled valley. Occasionally a mass of rock protrudes, causing an increase in the velocity of the current. Some twelve miles east of Old Green lake a large island, probably a mile and a half long by half a mile wide, divides the river about equally, but the northern channel is shorter and said to be more free from logs. At the upper end of this island is another very small one, against which a jam of logs has formed. A narrow channel has been cut close to the northern shore through which, with care, a canoe can be taken.

The River Epinette.

The Epinette, where it joins the Mississaga, is a black, sluggish stream about 20 feet wide. We were told by Indians that all the country through which it flows has been burned, with the exception of a narrow fringe along the river's edge, wooded with spruce, from which the stream takes its name. The two rivers come together from almost opposite directions, for the Mississaga here makes a sharp turn from a north to a westerly course. This northward stretch is the lower half of a deep U-shaped loop which the river makes to the south. This part of the river flows in a trough in the rocks two or three hundred yards wide, partly filled with deposited sediment to form a level tract, which gives evidence of being entirely flooded in time of high water. Through this plain the river, which is only 20 to 30 feet wide and 6 to 8 feet deep, and carries practically no sediment load, switches back and forth in abrupt meanders which reach nearly from side to side of the valley. The peculiarity, however, is that the cure rent is particularly strong, making up-stream progress laborious. In the natural development of a river one expects a sluggish current accompanying a meandering stream, and I am unable to account for this exception to the rule.

At the southern extremity of the U a stream from the south comes in ; it is on the line of portages from Otter lake. The lower half of the eastern arm of the bend is also through a mud flat, but the course is straighter and the current more moderate. All the surrounding country has been burned. The river on the northern part of this arm of the bend and beyond it is again on a rocky bed, and rapids and portages, separated by long lake-like expanses are encountered for the next three miles. Then we entered a long narrow lake which we called Deer lake, running southeast for about 3½ miles, and shut in by rocky ridges on which the forest growth is young. At the south end it broadens out into a round lake, which in turn sends a narrow arm northeastward across Niven's first meridian at 10½ miles

Back to Biscotasing.

Two miles above this line we came to a small potato garden which Indians have made in the very sandy soil. It lies at one end of a short portage leading north to a small lake ; from this a 25-chain portage reaches an arm of the main water route. By taking advantage of this course we cut off a long bend of the river. Once on the main channel, we paddled directly to Upper Green lake, where we took leave of Mr. Robinson, and on 21st September reached Biscotasing.

Regarding the country covered by the survey party after I left it, I quote from a letter which I received from Mr. Niven after he had returned :

" From the 6-mile point on the thirty-mile east line, I ran six miles south, crossing the Wenebegon river twice, and the portage from the river to Seven Mile lake at five miles and about 15 chains from the river.

" All the country east from Seven Mile lake being burned, I decided to continue the 24-mile line east, so ran on to the 18-mile point on east line and then ran south three miles ; at two miles I again got into the brulé . . . . I then returned to my base line and continued east to meridian line of last winter. . . . .

" I saw no minerals, and nothing but Laurentian formation."

Geology and Petrography.

The geology of the region in the vicinity of the survey lines run this summer was very little known, and practically nothing had been published concerning it. In 1857 and 1858 Mr. Alexander Murray ascended the Mississaga for some distance, and the results of his trips are recorded in the Reports of Progress of the Canadian Geological Survey of those years, and are also summarized in the Geology of Canada, 1863. In 1898 Dr. A. P. Coleman, acting for the Bureau of Mines, reached the Cheney mine on the Mississaga, and his report is contained in the Bureau's eighth annual volume.

An almost entirely Laurentian region.

As previously stated, the country included by and surrounding the various lines run by Mr. Niven this year is underlain, with one possible exception, by rocks of the Laurentian system. The predominant variety has the composition of a granite, and varies in texture from massive granitic—sometimes porphyritic, with large phenocrysts of orthoclase—to decidedly foliated gneisses. In these rocks the dark constituents are not abundant, so their characteristic color is pinkish, due to the red orthoclase or microcline, and they weather almost white.

At one point, however, namely, the hill already mentioned 3 miles north of the 63rd mile post, banded gneisses suggestive of extremely altered sediments were found, closely related with a fine-grained, gray granite. There were three types of bands composing this gneiss, light-colored acid, dark green hornblendic and grayish green, exceedingly schistose : this last kind was seen only in a large talus at the foot of the hill, and not in place, but the other two were well shown, alternating, and very sharply defined. Through this body of gneiss pierced the gray plagioclase granite. The intimate relation of these two, and the fact that neither was found alone elsewhere seemed to me to strengthen the idea that the remnants of old metamorphosed sedimentary rocks are here represented. A microscopic examination of the gray granite shows it to contain considerable quartz, a very little microcline, a large amount of fairly fresh plagioclase which from its extinction angle is seen to be oligoclase with some rather more basic feldspar, considerable green hornblende with a little biotite, both changing slightly to chlorite, and a few grains of titanic iron surrounded by their colorless border of leucoxene. One of the more acid bands of the gneiss shows under the microscope numerous grains of quartz, a large amount of turbid feldspar mostly untwinned, but a little with polysynthetic twinning, probably albite, and a small amount of hornblende. A specimen of one of the hornblendic bands can be seen with the aid of the microscope to be composed chiefly of green hornblende, while grains of turbid twinned and untwinned feldspar are not infrequent, a little brown biotite, a few few irregular grains of brownish sphene, a very little limonite and magnetite, and several small crystals of apatite and of zircon are also present. The probable third type of band is an actinolite schist, being composed largely of light green fibrous hornblende ; feldspar, if ever present, has been altered entirely to a fine scaly mineral with high interference colors—muscovite, or more probably talc ; grains of titaniferous iron ore with leucoxene are numerous.

Not infrequently the granitic gneiss passes over—probably gradually—to a syenitic gneiss, usually fine-grained. This change seems to be more common in the southern part of the territory covered than farther north. A specimen from a rapid of the Mississaga a couple of miles above the northern boundary of township 188, which appeared when viewed megascopically to be typical of this phase of the gneiss, was found under the microscope to still contain numerous grains of quartz ; cloudy untwinned orthoclase is abundant, and chlorite seen to be derived from biotite is present, with pyrite in small amount.

INTRUSIVE DIKES AND VEINS.

All these Laurentian rocks are cut very generally by intrusions of two classes. One of these consists of dikes or veins of coarse-grained pegmatite or of finer-grained material of apparently similar composition—almost wholly quartz and red orthoclase and microcline. They never hold more than very small crystals of mica, and have only minute grains of magnetite and pyrite scattered through them. The second class of intrusions, most commonly in the form of dikes, consists of rather fine-grained, grayish green, rusty weathering diabase; such rock is found very frequently, often in masses of considerable size. Three specimens, from a mass at 34 miles 70 chains, from the foot-wall of the quartz vein at 48½ miles, and from a large intrusion 2½ miles south of 66 miles, respectively, are very similar in outward appearance, and the microscope confirms this similarity. All are considerably altered by the weather. The first contains plagioclase which is so turbid that twinning cannot be seen, a good amount of very light-brown augite, considerable green uralitic hornblende, probably secondary from the pyroxene, and largely altered in its turn to chlorite, many irregular grains of titanic iron ore with a narrow border of leucoxene, a little pyrite, and a few small grains of epidote. The third specimen is very similar; a little of the feldspar shows twinning according to the albite law, hornblende is absent, but light yellowish brown augite is in some cases greenish due to incipient alteration. Chlorite and pyrite are less abundant, and no epidote or iron ore is seen.

The second specimen differs to some extent from these; pinkish individuals can be seen in the hand specimen, and in the thin section, although the feldspar is badly altered, there seems to be a little orthoclose; the augite has changed mainly to uralite and a little chlorite, while grains of ilmenite are numerous.

A GRANO-DIORITIC MASS.

The large intrusive mass which crosses the line between the 51st and 52nd miles, gave an appearance in the field which was immediately suggestive of the typical Huronian greenstone or diorite of Logan, and when I had ascertained its elongated form, I questioned whether it were not an outlying remnant of a long narrow trough of Huronian rock, trending northeastward, similar to that on which Sudbury stands. It is a greenish rock, of medium grain, the lighter colored constituents being partly pale green and partly pinkish. Microscopically, it is found to contain a very little plagioclase, and abundant very turbid untwinned feldspar, the alteration product of much of which appears to be muscovite, pointing, together with the pink color, to the original presence of considerable orthoclase; fair amounts of brownish green hornblende, and of apparently secondary brown biotite, a very little augite and chlorite. A few grains of quartz, and numerous patches of magnetite make up the remainder of the rock.

For comparison, I took a specimen, from a mass just below the Cheney mine, of the greenstone which Murray mentioned.[6] It is a rock similar in appearance to the preceding, somewhat finer in grain, and containing less of the pink constituent and hence having a more basic look. When examined with the microscope, most of the rather abundant feldspar is found to be too cloudy for identification, but a few lath-shaped individuals point to the presence of plagioclose, while a micropegmatitic intergrowth[7] with a part of the small amount of quartz present indicates orthoclase; also green hornblende, changing to chlorite is present in considerable amount, as well as numerous grains of titanic iron and of pyrite, mostly embedded in the hornblende.

It therefore appears probable that the magmas of these two rocks were quite similar. But since Dr. Coleman finds that intrusions like this latter one have come up at a later date than

6. Geo. Sur. Can. 1858, p. 99.

7. Cf. A. P. Coleman, Rep. Bur. Mines, vol. VIII., 1899, p. 169.

the laying down of Huronian sediments,[8] correlation of any rock with such an intrusion gives no definite idea of its age. This grano-diorite at the 51st mile is the rock which has been cited as the one possible exception to the universal distribution of the Laurentian in the area traversed by the survey this season ; but the foregoing facts, together with its rather close resemblance to some of the smaller and very common intrusive masses, for example that occurring at 48½ miles, make it probable that it is simply an unusually large mass of such intrusive, and has no relation to anything Huronian.

A pink, finely grained granitic dyke lying in this same basic mass is found to be composed of quartz, abundant feldspar, with ratio of plagioclase to that untwinned about 1:3, and biotite altering to chlorite ; the whole rock is dusted full of ferrite.

HURONIAN ROCKS IN THE AREA.

The green Huronian slate as seen exposed between Squaw chute and the Tunnel consists of a very fine-grained, green, probably chloritic material, enclosing numerous particles of magnetite.

The slate conglomerate, of which I took a specimen from the most northern exposure seen on the river,[9] has been very well described megascopically by Logan.[10] The finer-grained parts, when examined microscopically are seen to consist of quartz fragments, and feldspar, mainly orthoclase, with some microcline and numerous grains of hematite, all embedded in a fine-grained greenish matrix, doubtless chloritic. A piece of the wall rock of the Cheney or Grande Portage mine is found to be the finer parts of this same slate conglomerate, in which can be seen very small fragments of diabase as well as particles of quartz and iron ore, the whole traversed by many minute quartz veins.

A specimen of what I called in the field a red quartzite, taken from a narrow, sharply-defined band intercalated almost horizontally with slate conglomerate two miles above Otter township on the Mississaga, is reddish in color, evenly fine-grained, and not very compact ; fragments of feldspar can, however, be detected.

Under the microscope it is found to consist of roughly equi-dimensional and equal-sized sub-angular grains of quartz and cloudy untwinned feldspar in about equal proportion, a very little plagioclase, and a few grains of magnetite and pyrite. The large amount of feldspar, and the peculiar relation of this band to the surrounding rock admit the possibility of its being a dike. But the texture of the rock as seen under the microscope, its great similarity of appearance to what is undoubtedly the red quartzite of Logan exposed farther down the river, and the fact that the typical red quartzite is really feldspathic and rather an arkose,[11] make it practically certain that this rock also is the ordinary red Huronian quartzite.

While the exposures of Huronian rocks on the part of the river which I visited make it certain that the system has a more or less extended development in that region, I found in every case that came to my notice that the higher hills were composed of granite, syenite, or gneiss identical with that which makes up the Laurentian. This, it seems to me, points strongly to a duplication of what Lawson found in the Lake of the Woods[12] and Rainy Lake[13] regions, where either the Laurentian had penetrated the Huronian in places, or else strata of the latter had sagged down away from bosses of the former, giving the effect of Laurentian islands in a Huronian sea.

For the identification of some of the minerals I have to thank Dr. A. C. Gill, Professor of Mineralogy and Petrography in Cornell University.

[8] Loc. cit., p. 169. [9] Geology of Canada, 1863, p. 62. [10] Ibid., p. 56. [11] A. P. Coleman, loc. cit., p. 159.

[12] Geol. Sur., Can., An. Rep't., 1885, Vol I. Part CC. [13] Ibid, 1888, Vol. III., Part F.

The Region Summed Up.

The country is a part of the old dissected Archæan plateau, underlain for the most part by rocks of the Laurentian system, but toward the south the Huronian comes in.

In the Laurentian, a very few quartz veins are found, but they appear to be either barren or very poor in content of economic minerals. In the Huronian, however, veins are more numerous, and frequently carry considerable amounts of copper, and at times possibly gold. No deposits of iron were seen, nor could anything of value be found in the way of placer gold.

Perhaps a quarter of the whole country has recently been burned ; and where the rock is not too bare, Banksian or jack pine is springing up. In the wooded parts, spruce, balsam, and white birch are found abundantly, also considerable poplar ; cedar, tamarac, and sometimes ash and elm are found in the low places, while maple occurs on some of the higher ground. Some very good areas of pine were encountered, notably along the 2nd meridian line. Black alder bushes often skirt the swamps, and great spongy masses of sphagnum are rapidly encroaching on many of the lakes.

Red deer are common along the Mississaga, but caribou and moose are scarce. Several bear were seen near that river in the vicinity of the Wenebegon. A colony of beaver lives on White river near the base line, while fresh traces of them were found near the Epinette. Musk-rats are plentiful wherever stream or lake banks are muddy. Few other fur-bearing animals were seen.

Fish are surprisingly scarce in the lakes ; only rarely can one be caught, usually a trout. In certain parts of the Mississaga pike are plentiful. Partridge and wild duck are often found in large numbers. During the first half of the season, we were greatly troubled by the black flies, gnats, and mosquitoes.

A few families of Indians of the Chippewa tribe live during the colder months of the year along the Wenebegon and Mississaga rivers and the large lakes near them, and generally spend their summers at some of the Hudson's Bay posts. Inland, one comes only occasionally upon traces of their former presence.

The summer season is generally bright and warm, but the winters are long and doubtless severe. Practically none of the drift covering deserves the name of soil, being far too sandy. For these reasons the region has no agricultural possibilities whatever.

ROUND LAKE TO ABITIBI RIVER.

BY L. L. BOLTON.

In the summer of 1902 Mr. T. B. Speight, O.L.S., of Toronto, was sent to the District of Nipissing to subdivide the township of Eby into farm lots, and to run a tie-line north from the northwest angle of that township to the Abitibi river. To this party I was attached as geologist, and besides myself there was also in the party a land and timber estimator, Mr. E. B. Lloyd, of Eversley, Ont., in company with whom I was instructed to work, our task being to acquire all the information possible concerning the country lying in and about Mr. Speight's field of work.

I joined Mr. Speight's party in Toronto on 27th June, and the same day we left for the north by way of North Bay, Mattawa and Lake Temiscaming. After leaving the steamer "Meteor" at New Liskeard, we went on board the Clyde, a small steamboat, which took us and our supplies to Wilson's landing at the "first chute" on the Blanche river. This is in the second lot in the fourth concession of the township of Evanturel. From there we proceeded up the Blanche to the township of Eby, where we were engaged till 4th August. Then rain followed for two days, after which we started north to the Abitibi. The Abitibi was reached on 4th September. The following day we started for home by way of the Abitibi lakes and the usual canoe route south from Abitibi Post over the height of land to lake Temiscaming.

Wilson's Landing to Round Lake.

On the morning of 1st July we proceeded up the Blanche river in canoes. About twelve miles above Wilson's landing we came to the first obstruction to navigation, a rapid caused by a ridge of very fine-grained greenstone, which is exposed close to the water's edge. At the next rapid, 200 yards farther on, there is an exposure of Huronian diorite. At the third portage, 300 yards above the mouth of the east branch of the Blanche, there is a fall of 35 feet (aneroid) over coarse-grained red granite, containing many small stringers of quartz. Between this fall and Round lake there are twelve portages, the last of which furnishes a short route from the river to the southern shore of the lake.

Having crossed this lake we ascended the Blanche about 200 yards, when we came to the mouth of a small creek entering from the west, up which we canoed about 100 yards. From here we portaged westward to the township of Eby, a distance of three and a half miles. The trail lay mostly through wet swampy land, supporting a thick growth of Banksian pine and spruce. Two or three outcrops of reddish granite were noticed on the way.

Round Lake.

Round lake is a pretty body of clear, deep water. As its name indicates, it is almost round, being about three miles in diameter. It is fed by the Blanche river, which enters from the north about three-quarters of a mile east of the western arm of the lake, and is drained by the same river flowing from its southwestern angle.

Both Laurentian and Huronian rocks are exposed on its shores. On a small point two hundred yards west of the mouth of the Blanche, the rock is diorite, much cut up by small irregular dikes of fine-grained, reddish granite. Along the western shore the rock is all red granite, composed of quartz, feldspar and hornblende, but on a point just northeast of the outlet, there is a breccia made up chiefly of feldspar fragments. Opposite this on the south

shore we find diorite to be the country rock, and this continues along the south shore to the eastern end of the lake, where it is associated with a breccia similar to that just mentioned. On the north shore there are several small rocky points separated by intervening bays with sandy shores. These show rocks of Laurentian age, namely, granite and syenite, both reddish in color; the syenite is to be seen on the first point east of the mouth of the Blanche.

The Blanche Above Round Lake.

On ascending the Blanche we find it flowing between clayey, and in places, swampy banks. Rock exposures are not numerous; what few there are, are of reddish syenite. In several places the stream is blocked with driftwood. About ten miles above Round lake we come to the foot of a series of rapids over Huronian rocks in most places fine-grained and schistose. These are avoided by a portage three-quarters of a mile long leading northward to Lake Kapikokonaka

This lake is about one mile long from north to south, and about half a mile wide. Near the northern end there is an island with high, rocky shores which gives the lake its name. The shores on the east, south, and west of the lake are high and steep; the only kind of rock seen is grayish greenstone. To the northeast the shore is low and marshy, and here a sluggish stream enters. After ascending this for about a mile and a quarter, we come to a rapid caused by a ridge of greenstone. About two hundred yards farther on there is another rapid passed by a portage of four chains on the west bank. Here is seen the jasper conglomerate, cut by a band of dolomite, which is mentioned by Mr. W. J. Wilson in the Summary Report of the Geological Survey for 1901, p. 124.

Above this rapid is a sluggish body of water varying in width from ten to one hundred and twenty-five yards, and extending almost due west for four miles. The banks at the east end of this body of water, are low and wet, but to the west they gradually rise in height. The south bank, which is the lower of the two, supports a second growth of spruce, birch, balsam, and alders: the north bank rises more abruptly and is clothed chiefly with Banksian pine and poplar, along with spruce, birch, balsam, and a few ash. To the north low hills are to be seen, on which the prevailing timber appears to be Banksian pine and poplar. There are a few exposures of greenstone to be seen along the shores. About three and a half miles west of the last rapid mentioned conglomerate carrying small jasper pebbles appears on the side of a hill about seven chains inland from the north bank.

Partridge-crop Lake.

At its western end this body of water narrows to a stream which we ascend in a northerly direction for three-quarters of a mile when we come to a small expanse of water known as Bineomodai or Partridge-crop lake. On all sides of this, except to the north, where it is swampy, there are low hills covered with Banksian pine, poplar and spruce.

Leaving this lake we follow the stream westward for fifteen chains, and then northward for twenty-five chains. Here the stream takes an abrupt bend and the direction of our course, as we proceed to Kenogami lake, is about southwest. At several points along the shore there are exposures of diorite carrying pyrite. One such exposure is seen at the most northern part of the stream; the shore here rises about twenty feet above the water level, and rough and rocky ground extends southward for thirty chains to a hill about seventy-five feet in height.

In general the land to the south rises rapidly into low hills, which are clothed chiefly with Banksian pine, poplar, spruce and birch. Along the north bank there is a clay belt, averaging twenty-five chains in width, thickly timbered with poplar, spruce and birch, some trees attaining a diameter of eight inches. Beyond this there is a rise of ground, the hills in places reaching a height of seventy-five feet. The rock here too is diorite carrying many small disseminated grains of pyrite. North of this ridge the land drops to a lower level for a distance

of two or two and a half miles, when it again rises into a series of low hills stretching northeast and southwest. The depression between these two lines of hills is in places swampy, but is chiefly an area of low rocky ridges and sandy soil, supporting small Banksian pine, poplar and birch.

Lake Kenogami.

Lake Kenogami is an irregularly-shaped body of water. Its length from east to west is about three miles, and from northwest to southeast, including an arm stretching to the northwest, about five miles : its width from north to south varies from half a mile to one mile. In it are a few small islands, only two of them, however, being large enough to deserve mention.

On nearly all sides the shores rise into low hills. To the north and east the timber is all second growth, but to the west and for a short distance inland from the south shore some large spruce and poplar are seen. A few red pine grow on a point on the north side of the lake, and on a ridge about thirty chains west of the lake there are some scattered white pines. The spruce between this ridge and the shore often attain a diameter of sixteen inches.

From Kenogami lake we endeavored to find a canoe route westward to the south branch of the Blanche river. An Indian trail was found leading inland, but this had apparently not been used for some years, for it soon became so indistinct that we were unable to follow it. This having been abandoned, we tried to make use of the northern boundary of the township adjoining Eby on the west, run in 1889 by Mr. Niven, O.L.S. This attempt, too, was unsuccessful, for the line was so thickly overgrown with small brush that one could only with the greatest difficulty make any progress. Accordingly, as our base of supplies lay in this locality for some time, we made a rather detailed examination of the township of Eby and the country to the north of lake Kenogami.

Geology of Kenogami Basin.

Around the shores of lake Kenogami several types of rocks are exposed. The following may be mentioned : diorite, diabase, conglomerate, and greywacké. Of these, diorite is the most common ; conglomerate comes next ; and lastly we have diabase and greywacké. On the north side of the lake is a rocky point (forming parts of lots 6 and 7 in the sixth concession of the township of Eby) composed chiefly of conglomerate. This is made up of angular, sub-angular, and rounded fragments, varying in diameter from an inch to two or two-and-a-half feet. They are principally reddish granite, reddish quartzite, diorite, and greenstone. The matrix has a brownish color, thus giving the rock a reddish-brown color when viewed from a distance. In places the rock is very coarse-grained, but it shades into a phase so fine-grained that the component fragments cannot be determined with the naked eye. The latter variety, examined microscopically, is seen to be made up of small fragments of quartz and feldspar, some angular, some rounded, set in a matrix of still finer fragments. Particles of pyrite, biotite, chlorite, and slate occur in smaller amount. Of the feldspars, plagioclase is the most common, orthoclase and microcline occur sparingly, the latter probably as an alteration product, for the wavy extinction of the plagioclase shows that the rock is highly metamorphosed. The rock may be called a greywacké.

Northward from this point we find fairly level, clayey, and swampy land for twenty chains. At this distance we encounter a ridge of brecciated conglomerate similar to that exposed on the point. In addition to the varieties of component fragments occurring in the previously described conglomerate, we here see fragments of jasper, few in number however. This ridge is low—about forty-five feet in height—and extends east and west. For three miles farther north there is a succession of low ridges, showing exposure of weathered diorite, which usually carries many small disseminated grains of pyrite. These ridges are rarely more than thirty feet in height ; between them lie narrow strips and patches of sandy, and occasionally swampy soil. The timber is all second growth.

JASPER CONGLOMERATE WITH IRON ORE.

At the eastern end of Lake Kenogami we find coarse-grained diorite exposed on a couple of points. About twenty chains inland along the northern boundary of Eby we come across an outcrop of conglomerate, and beyond this similar ridges extend for more than half a mile. This is very much like the conglomerate described before. It carries a few more jasper pebbles; and I also noticed one pebble measuring 2 inches by 3 inches which was composed of inter-banded jasper and magnetite. A peculiar feature was the occurrence of narrow irregular streaks of hematite from one-quarter to one-half inch in thickness, one of which could be traced along the face of a rock for a distance of twelve feet.

One mile south of here, and a few chains eastward from the southeastern arm of the lake, is a very badly decomposed serpentinous rock containing an abundance of small, distinct crystals of pyrite. The surface of the rock weathers rapidly, forming a reddish, iron-stained, cellular crust from one to two inches in thickness.

On the west side of the southeastern arm of the lake there is an exposure of a very fine-grained, grayish rock, resembling trap. It is composed of intergrown plagioclase and hornblende, the former partially altered to saussurite. The hornblende is the older. About three chains southeast from here, at the half-mile post between lots 5 and 6 of the sixth concession, there is a magnetic variation of 90° to the west. The only rock exposed in the vicinity is diorite, but for the most part rock exposures are obscured by a covering of gravelly soil. Fifteen chains to the westward a magnetic variation is again noticed. The behavior of the needle is very erratic over a considerable area. The greatest variation noticed was N 150° E. Scarcely any rock in place could be seen, as it appeared to be everywhere concealed beneath a coating of soil, only one small exposure being found. This rock is very fine-grained and hard, and its color is reddish. A thin section shows the rock to be made up almost wholly of feldspar fragments, plagioclase predominating, and orthoclase being present in small amount. The larger fragments are set in a ground-mass of very small fragments, most of which are plagioclase. Pyrite, quartz and chlorite are also present. That the rock has been severely metamorphosed is shown by the wavy extinction of the feldspar.

Proceeding westward along the southern shore, exposures of pyritous diorite are frequent. On one point projecting to the north the rock is conglomerate. At the west end of the lake there is clay soil, and no rock is exposed. Having followed the west shore for three-quarters of a mile we pass the mouth of a small creek, and from there the direction of our course, as we follow the shore line, is northeast. The shore here is quite rocky, diorite being exposed in most places. On one point there is an area of coarsely crystalline diabase. Having followed this rocky shore for about one mile we come to a narrows, beyond which an arm of the lake stretches to the northwest. Of this arm we shall speak later.

TOWNSHIP OF EBY.

That part of the township of Eby lying eastward of lake Kenogami is composed almost wholly of rocky ridges separated by swampy tracts ; but there are a few small areas of muskeg and gravelly clay soil. The swamps support a dense growth of bushy spruce and black alders, and occasionally a few cedar. Exposures of weathered diorite are plentiful on the ridges and hills. The slopes of these ridges, and many of their small depressions, are occupied by sandy and gravelly deposits of glacial origin. The highest elevations—amounting to about seventy-five feet—lie in the vicinity of the line between the fifth and sixth concessions. On the higher parts of the river, where soil is scarce, there is only Banksian pine, while on the slopes we find poplar, birch and spruce. On lot 4 of the sixth concession there are a few white pine, and along the eastern boundary there are some large spruce measuring sixteen inches in diameter.

The only indication of economic mineral in this locality was noticed along the line between lots 4 in the fourth and fifth concessions. About twenty chains east of the western boundary of these lots a low ridge of diorite crosses the line. In this there is a small vein of quartz from four to six inches wide, which carries particles of galena; pyrite and hematite are also present, but in very small amount. Owing to a covering of soil this vein could be traced only for a short distance.

From ten to sixty chains south of lake Kenogami lies a range of low hills (connecting with the ridges to the east near the line between the fifth and sixth concessions) which forms a watershed, turning all the waters falling on its southern side into a small stream which joins the Blanche just below the outlet of Round lake. At various places along this ridge rock exposures are seen, more particularly on lots 5, 6 and 7 of the fifth concession. The rock exposed is, in every case, diorite, usually dark, greenish-black in color, and rather coarse-grained. One occurrence shows particles of calcite, formed no doubt by weathering.

A SWAMPY SECTION.

South of this ridge, and lying in lots 5, 6, 7 and 8 of the fourth and fifth concessions, is a large area of wet swamp supporting only black alders, bushy spruce and willows. This varies in width from one mile to one and a quarter, and its length from northwest to southeast is two miles. Below the water and black muck there is a clay bottom, so that with proper drainage this area might be reclaimed. At the southeastern end, in lot 5 of the fourth concession, it changes gradually into a muskeg, which is drained by a stream about six feet wide and two feet deep, flowing towards the southwest. The stream continues flowing in this direction until it reaches the northern end of lot 6 in the third concession, where it turns and flows south for three-quarters of a mile, after which it proceeds southwest, finally joining a larger stream in lot 7 in the second concession.

In the southern end of lot 6 in the fourth concession we find that the stream has clay banks, which extend back for about half a mile and support a thick growth of spruce from three to eight inches in diameter. This strip of ground is almost perfectly level, and as the impervious clays prevent the water draining away a thick growth of moss is promoted and the ground is everywhere damp.

Along the larger stream which enters Eby from the west, there is a similar strip of clay land extending near to the junction of the two streams. In that vicinity there is a gradual change to muskeg, which occupies the larger part of lots 7 and 8 in the second concession, and lots 5, 6, 7 and 8 in the first concession. This muskeg is everywhere wet, and it supports only small bushy spruce. It is skirted on both east and west by a wet swamp with black muck from two to three feet deep over a clay bottom. In these swamps we find spruce three to six inches in diameter, and dry tamarac.

SANDY PLAINS AND ROCKY RIDGES.

To the eastward of the swamp, in lots 3, 4 and 5 of the second and third concessions, there is an extensive area of white sand which supports nothing but Banksian pine and birch. This timber is mostly small, but a few of the pine attain a diameter of from ten to twelve inches. In the northern part of lots 3 and 4 of the third concession the surface becomes rougher, and many small ridges outcrop, all showing exposures of weathered diorite carrying pyrite. This rocky area extends northeastward, across lots 1, 2, 3 and 4 of the fourth concession, to the township of Otto. The sandy area mentioned above rises towards the east and gives place to a number of slight elevations in lots 2 of the second and third concessions.

This ridge drops abruptly into a swamp which extends eastward beyond the boundary for two or two and a half miles, and southward to within a few chains of the southern boundary of

Eby. In the swamp spruce prevails, while cedar is present in small amount. On the ridge to the west of it there is a thick growth of small Banksian pine, spruce, birch and poplar. A small clump of white pine is seen in the northern half of lot 4 of the third concession.

CONTACT OF LAURENTIAN AND HURONIAN ROCKS.

The rock exposed on the ridges is almost exclusively diorite. One exception was noticed; along the line between lots 1 and 2 of the second and third concessions there is a fine-grained reddish granite in association with a rock made up almost wholly of fragments of reddish feldspar. Another granitic outcrop is seen in the township of Otto about thirty chains from the southeastern corner of Eby. About twelve chains west of this corner is a ridge, which, although made up largely of pyritous diorite, has an exposure of reddish granite on its northeast side. There is evidently a contact between rocks of Laurentian and Huronian age in this vicinity, but it is concealed by a covering of soil.

The creek mentioned some time before leaves the township of Eby at the southern end of lot 5 in the first concession. Westward from this we find muskeg and swamp for two or two and a half miles, supporting small spruce, balsam and alders. Here and there are small patches of clayey and sandy land.

In the southern part of lot 11 of the first concession, a hill rises to a height of one hundred and twenty-five feet (aneroid) above the swamp level. On the north and east this hill has a steep front, but to the south and west it is connected with other hills. The northern part is made up of a coarsely crystalline, reddish, hornblende granite. Elsewhere on the hill the rock exposed is a hornblende schist which cleaves readily. The contact between the two is quite distinct, and the schist has the appearance in places of being baked. The strike of the schist is N 70° E, and through it are scattered small irregular stringers of quartz.

West of this hill, and separated from it by a small depression is a hill composed of hornblende schist, which attains a height of one hundred and seventy-five feet. To the west there is a narrow depression occupied by a lake half a mile long from northwest to southeast, whose waters are held back by a beaver dam across a narrow gorge at its northeastern extremity. Not far west of this dam an almost horizontal dike of granite is seen, cutting through diorite. Northward from the lake are a couple of hills sixty feet in height, composed of a dark diorite, in which are scattered stringers of quartz. North of the second hill lies a low depression filled with a dense growth of small spruce, Banksian pine, birch and alders, which separates it from a hill composed of reddish, hornblende granite. From this granite hill exposures of reddish granite could be seen for four or five miles to the west. The contact between this granite and the Huronian is concealed by a covering of soil.

Granite outcrops continue for about a mile northward, where the ground again reaches swamp level. Outliers of this area of Laurentian rocks are found for a couple of miles to the northeast; these appear as granite ridges rising a few feet above the swamp level, and were noticed in the northern part of lot 11 in the first concession, in lot 10, and in the northern part of lot 9 in the second concession. In the last mentioned place granite and diorite are exposed in proximity.

In lots 8 and 9 of the third and fourth concessions the land emerges from the general low level, and we find rising slopes of gravelly and clayey soil. In several places ridges attain to a height of thirty and forty feet. These, as usual, show exposures of diorite carrying pyrite. On this higher land poplar and balm of gilead are plentiful, and reach a diameter of eight or ten inches. Birch, Banksian pine, and spruce also occur, and a few white pine were noticed in the northern part of lot 9 in the third concession.

CLAY LAND AND MUSKEG.

The greater part of lots 10, 11 and 12 of the third concession is composed of flat clay land covered with a coating of moss, and supporting spruce from three to eight inches in diameter. This clay land extends north and embraces part of the corresponding lots in the 4th concession. It is separated by a series of low diorite ridges from a muskeg extending a mile and a half north to the 6th concession, and westward from lot 9 in the 5th concession to the western boundary of the township. This muskeg is a large peat bog varying in depth from three and four feet along the edges to six and seven feet elsewhere. To the north there is a swamp about twenty chains wide in which the chief timber is spruce and cedar. This is separated from lake Kenogami by a narrow strip of rising gravelly soil supporting spruce, poplar, birch and balm of gilead. A few outcrops show the rock in place to be diorite.

MINERAL INDICATIONS IN EBY.

From what has been said it will be seen that rocks of both Laurentian and Huronian age are found in the region to the south of lake Kenogami. The locality of the contact between these rocks ought to be favorable to the occurrence of mineral deposits. In addition, in the areas of Huronian rocks we have several outcrops of conglomerate, containing in places jasper pebbles, which is favorable to the occurrence of iron ores. The extensive magnetic variation noticed in some places would seem to point to the occurrence of bodies of magnetite.

Owing to the fact that the rock outcrops are as a rule isolated, being separated by intervening areas of clay, sand, swamp or muskeg, little detailed work could be done on them, and their relation to one another could not be carefully worked out. A few quartz veins were noticed cutting dioritic rocks. These were seldom more than eight or ten inches wide. A sample of one of them from the northern end of lot 3 in the 3rd concession was assayed for gold and silver, but was found to contain neither. Speaking of the whole area, however, it is one which ought to be worth prospecting.

The larger part of the township of Eby is swamp and muskeg, the latter usually having a clay bottom. None of this is now fit for agricultural purposes as it is too wet. However, if a comprehensive scheme of drainage were employed, many hundreds of acres of good land ought to be available, for the clay usually contains enough sand to make it easily workable.

Of good timber there is a scarcity. This country was burned over about thirty years ago, and as a consequence the timber is all second growth, with the exception of small areas which escaped the fire. Such areas occur along the south and west shores of lake Kenogami, and another is seen in lots 4 and 5 in the third concession where there are a few large white pine, balsam, and spruce. The second growth timber embraces spruce, Banksian pine, poplar, white birch, balm of gilead, balsam, black alder, soft maple, yellow birch, etc. These would be useful only for fire-wood.

NORTHWEST ARM OF LAKE KENOGAMI.

Mr. Speight having completed the survey of the township of Eby, commenced work on the the tie-line to be run north to the Abitibi river. Accordingly we left our camp on lake Kenogami, and proceeded northward. We have previously mentioned that the lake has an extension to the northwest with which it is connected by a narrows. Passing through this narrows we find a body of water one and a half miles long, and half a mile broad. Near the centre lies a large island. The shores to the north, east, and south are high and rocky, and prove on examination to be dioritic. The timber seen on these hills is Banksian pine and poplar.

At the northwestern end the west shore is quite low. Going inland here for a distance of three chains we find a small lake twelve chains broad and fifty chains long lying almost parallel to the first mile of the tie-line, from which it is about ten chains distant. This is emptied at its southern end by a small creek, in all probability the one entering the western end of lake Kenogami. To the west of the lake the land rises steeply, and at a distance of ten chains the height is one hundred and twenty-five feet. From this hill we can see that the country for several miles to the east is hilly and rocky, and is timbered almost wholly with Banksian pine and poplar. To the northwest a much higher hill is seen. Returning to lake Kenogami, we proceed about fifteen chains northward to the end of this expansion of the lake. Beyond the narrows here—about five chains wide—we find another expanse of water three-quarters of a mile long and half a mile broad. This is fed at its northwestern angle by the Blanche river, which here enters as a shallow stream, the mouth being almost hidden in marsh. The tie-line cuts across the head of this expanse, and the second mile-post is only a few chains distant from the mouth of the river.

OUTCROPS OF CONGLOMERATE.

On the west shore we find a sloping strip of clay land about five chains wide on which is a thick growth of white poplar and white birch. This is succeeded by a narrow strip of gravelly soil, beyond which is a flat-topped ledge of fine-grained conglomerate about four chains in width. West of this for ten chains lies a swamp with a dense growth of small bushy spruce and alders, and occasionally a few large spruce. Beyond the swamp the land begins to rise steeply, and on it we find an abundance of small white birch and black cherry, along with a thick underbrush of soft maple. In making the ascent we meet three almost perpendicular faces of rock, between which there are steep slopes. The last of these walls of rock is thirty feet in height and extends about twenty chains in a direction N 20° E. The rock is principally slate with dip about vertical. In some places conglomerate is seen. This shades into a fine-grained brownish rock similar to that occurring in association with the conglomerate on the north shore of lake Kenogami. It may be called graywacké. This hill attains its greatest height, two hundred feet, at its southern end where it presents a steep front. Towards the north and northwest it slopes gradually into a range of lower hills. To the southwest and west lies a valley about three miles wide, apparently a continuation of the low-lying belt crossing the township of Eby. Beyond this is a ridge timbered chiefly with Banksian pine, and rising in height towards the north.

The Blanche above Lake Kenogami.

Ascending the Blanche, which is about thirty feet wide and seven feet deep, we came to the mouth of a small tributary about half a mile from the lake. We canoed up this creek in a northwesterly direction for about half a mile. No exposures of rock were seen. Near the mouth of the stream were clay banks on which white birch and poplar grew plentifully. Farther up the soil becomes sandy, and here Banksian pine predominates.

Returning to the Blanche we continued up stream, going about north, the river flowing between clay banks. Close to the river there is a dense growth of black alders, but back of this we find spruce, Banksian pine, birch, etc. About one mile and a half above the lake we landed on the west bank and went inland. We found the clay belt to extend about ten chains when we came to a hill, one hundred feet high (aneroid), composed of slate and conglomerate. To the west of this hill lay a marsh; to the east, across the river, hills appeared not very far away, hence it is probable that the strip of clay land along the river has not anywhere a very great width.

About half a mile farther up stream a creek enters from the east. This can be ascended by canoe for about ten chains. About ten chains farther on there is a fall of fifteen feet, above which is the arm of the lake drained by this creek. The length of the lake from east to west is forty chains, and its greatest width is fifteen chains. At a distance of ten chains from the western end it narrows to a width of two chains, and about fifteen chains farther to the east there is another narrows, six chains wide. On the south the shores are high and rocky, and are clothed with Banksian pine and poplar. To the east there is low level land beyond which hills appear in the distance. Northward the country is fairly level and there we find poplar, birch, and balm of gilead. The rock outcrops are all diorite, and similar rock was seen on the tie-line both north and south of the lake. Near the west end of the lake there is an exposure of diorite showing glacial striae N 15° W.

Above the mouth of the stream draining the lake the Blanche becomes narrower and shallower, and its current more rapid. The general direction of the stream is still north and south but it is very crooked. The clay belt along the banks almost disappears, and sandy areas and low rocky hills come almost to the water's edge.

OUTCROPPINGS OF SLATE AND DIORITE.

About one mile and a quarter due north of the small creek last ascended there is a small rapid where the stream flows over a flat slate rock dipping to the south; eastward from this near the tie-line another outcrop of slate occurs. A mile and a half farther north there is an outcrop of diorite showing glacial striae N 12° W. This is followed by similar outcrops, and ten chains farther on there is a fall of five feet over an outcrop of diorite. This fall is passed by a portage of one chain on the east bank.

One mile above this fall we come to lake Sucker. This is about fifty chains long from north to south, and about thirty chains broad. Around its shores are several exposures of diorite. To the west, twenty chains away, are two hills showing exposures of conglomerate, and, in places, schistose diorite carrying small segregations of quartz, and small particles of calcite. The timber to be seen around here is all second growth, similar to that along the banks of the stream; the varieties present are Banksian pine, spruce, poplar, birch, balsam, balm of gilead, etc.

At a distance of ten chains above lake Sucker we come to a rapid with a fall of five feet over schistose diorite. This is passed by a portage of two chains on the north bank. The river here takes a sharp bend to the east, and following it for a mile and a quarter we reach lake Sesekinaka, having skirted the southern flank of the height of land on the way.

Lake Sesekinaka is about three miles long. It is from one to one and a half miles broad, tapering to both north and south. In it are many islands, which lie close to one another, hence the name of the lake, Sesekinaka, meaning "islands clustered together." Rock exposures are plentiful: diorite, diabase, and slate are seen. On all sides are low rolling hills covered chiefly with spruce, birch, and poplar.

Lake Sesekinaka to Lake Anikojigami.

Our course across this lake lay to the southeast for a mile and a quarter, when we came to the mouth of a creek entering from the east, up which we proceeded for a distance of forty chains, when we came to the foot of a series of rapids over boulders and pebbles. These are avoided by a portage of fifteen chains on the north bank, which leads over a strip of good clay land. Soil of a similar nature is seen along both banks of the stream all the way from lake Sesekinaka to this point.

From the head of this portage we continued up stream from one and a half miles till we came to a rapid with a fall of twelve feet. The stream is only about fifteen feet wide

and from two to three feet deep. In several places it is too shallow to float a canoe. Several exposures of greenstone are seen along the banks on which grow Banksian pine, spruce and birch. The rapid is avoided by a portage of four chains on the north bank. This brings us to the foot of the first lake east of lake Sesekinaka.

This is a small lake, twenty-five chains long from north to south and fifteen chains broad across its southern end. Fine-grained greenstone is exposed in several places on its rocky shores. Our course across this lake lay due east to a narrows thirty feet wide connecting with another lake. Through this there is a swift flow of water with a fall of six inches.

Passing through this narrows we go N 135° E ten chains ; next N 160° E fifty chains, which brings us to a narrows, beyond which is another part of the lake fifty chains long from north to south and twenty-five chains wide. From the narrows we go due east twenty-five chains to the east shore. Each part of the lake just crossed is fed by a creek entering from the north, where the country appears swampy. To the south, east and west it is hilly. Along the east shore of the lake near the north end there is an exposure of granite. Elsewhere greenstone is seen.

From this lake a portage of one and a quarter miles leads east over a high hill to another lake, the third east of Sesekinaka. Along this portage reddish hornblende granite outcrops in a few places. The soil is a gravelly clay, supporting spruce, Banksian pine, poplar, birch and balsam These are all large, many of them having a diamater of twenty inches. There is also here a dense growth of small soft maple. This area evidently escaped the fire which passed over this region thirty years ago.

The lake to which this portage brings us extends forty chains east and west, and twenty-five chains north and south. It contains many small islands. The country to the south and west is hilly ; to the north low and swampy. Exposures of reddish hornblende granite occur on the east and west shores, and on the islands. Our course across this lake was about N 80° E.

A portage of thirty chains, S 60° E, leads to the fourth lake east of Sesekinaka. The land along this portage is comparatively level and supports large spruce, poplar, Banksian pine and balsam. The lake now reached consists of two parts ; the first extending N 50° E twenty-five chains, and the second extending N 40° E thirty-five chains. We travel south-easterly across the first part to a narrows which connects it with the larger part. On the west shore there are exposures of reddish hornblende granite showing glacial striae N 12° W. At the narrows we find the granite in association with greenstone, the latter being cut by small irregular granite dikes. To the east about ten chains distant are some high hills.

A small stream enters this lake at its northeastern end, which is two chains long and has a fall of two feet. It drains a small lake measuring five chains from north to south. Several exposures of diorite are seen along its shores.

Anikojigami Lake.

From a narrow bay at the south end of this little lake, a portage leads thirty chains south-easterly to lake Anikojigami. The portage passes over a hill one hundred and twenty-five feet in height. The soil is gravelly and sandy. Small second growth Banksian pine, poplar and birch are plentiful. A few exposures of diorite, somewhat schistose in nature, were noticed here.

"Anikojigami lake, as its name implies, is a collection of lakes joined together by narrow passages. It is more than eight miles long, with narrow winding arms."[1] To the north, south, and east are smaller lakes which empty into it. The outlet is about one mile south of the point where the portage from the west reaches the lake. From here a stream flows south which joins the Blanche in the vicinity of the first portage east of lake Kenogami.

[1] Sum. Rep. Geol. Sur., 1901, p. 125.

The shores of the lake are usually high and rocky. They show exposures of diorite, in places coarsely crystalline, but more usually schistose, in which case it carries stringers of quartz. On the west side of the narrows, which are ten chains northeast from the end of the portage, there is a reddish dike cutting the greenstone. It is about fifteen feet wide and strikes east and west. Feldspar fragments can be distinguished in it by the naked eye. These are set in a crypto-crystalline ground-mass. A thin section shows that the feldspar occurs in crystals as well as in fragments ; both plagioclase and microcline are present. In addition to the feldspar there are many small fragments of hornblende. The ground-mass is found to be made up chiefly of minute fragments of feldspar. About one mile southeast from here a large granite boulder was observed, which probably indicates an outcrop of granite to the north. Glacial striae were observed in several places. Their direction was N 30° W, but it is possible that the compass was here affected by some local attraction, for all the other striae observed during the summer were N 12° to 15° W. On the hills surrounding the lake there is a stunted growth of poplar, birch, Banksian pine, etc. Some ash were noticed in a couple of places along the south shore.

From the Blanche to the White Clay.

From lake Anikojigami we returned to the height of land portage before mentioned. This leads north from the Blanche river to the head waters of the White Clay river. The portage, which is forty chains long, passes over almost perfectly level swampy and sandy land to a small pond three chains long and two chains broad. Having crossed this another portage, ten chains in length, is necessary to reach the next pond which is about the same size. This is drained from its northern end by a small creek too shallow to float a canoe. Consequently a portage is made along the west bank of this creek for a distance of twenty chains.

No rock exposures are seen between the Blanche river and the last-mentioned portage. Here several outcrops of diorite are visible, and also one of red granite ; the relation of this to the diorite could not be determined, as it was surrounded by sandy soil. Scrubby Banksian pine and spruce prevail in this locality.

The creek where the portage reaches it is still shallow ; it here flows through a muskeg. After poling down it for fifty chains we reach a small lake-like expansion, where the water is slightly deeper. At the northwestern angle a stream enters, which drains Swan and Gull lakes. From the northeast corner the White Clay river flows northward to Kekekwabik lake.

SWAN AND GULL LAKES.

We proceeded up stream to Swan lake half a mile distant. Along the stream a few exposures of diorite were noticed. On the east bank there are some large spruce, but to the west the timber is all small. Swan lake extends seventy-five chains N 60° W. Its width is twenty-five chains. The lake is shallow and weedy. To the northeast there is a small clump of white pine.

We travelled in a direction N 30° W across this lake to the mouth of a creek, which for a few chains above its mouth winds about, but after that the direction of its course for a mile and a quarter is north and south. Here it turns to the west, crossing the meridian-line at eleven miles thirty chains north of the township of Eby. Just south of the stream the line passes over a hill of reddish conglomerate forty feet high (aneroid). Thirty chains farther south there is another hill fifty feet high, showing exposures of slate. To the north and northwest low swampy land extends about two and a half miles, beyond which is higher ground clothed with Banksian pine. To the northwest a reddish brown hill appears beyond the swamp.

Twenty-five chains northwest of where the line crosses the stream we come to Gull lake. The stream up to this point varies in width from thirty to sixty feet and in depth from two to six feet. In many places the bed of the stream is filled with rounded greenstone boulders.

Gull lake measures seventy chains from east to west. Its width at the western end is sixty chains, and at the eastern end twenty-five chains. At the east and west ends and near the southeastern shore there are small rocky islets showing exposures of diorite of Huronian age. These show glacial striae N 15° W. The southeast shore is composed of gravelly clay on which grow large birch and balsam. On all other sides there is low swampy land. These wet swampy areas are drained by small creeks entering at the northwest, northeast and southwest angles of the lake.

MALLOCH AND BUTLER LAKES.

Two miles and a half north of Gull lake we come to a large tract of sandy soil with Banksian pine from three to eight inches in diameter. In this sandy area there are two lakes draining northeast into the Black river. The first of these, Malloch lake, is three and a half miles north of Gull lake and lies parallel to the sixteenth mile of the meridian line. It is a pretty body of beautifully clear water, surrounded by high sandy shores covered with Banksian pine. It is one and a quarter miles long, and from six to ten chains broad. Near the southern end there is a bay on the west ten chains long by seven chains broad. Five chains south of this there is a pond six chains long, beyond which is a smaller one three chains long. There is not a rock exposure to be seen anywhere in this vicinity. A few pebbles of quartz, granite, greenstone, etc., are mixed with the sand on the shore.

Proceeding to the northerly end of this lake we find it empties by a shallow stream—blocked by several beaver dams—into a larger lake six chains to the north, named Butler lake. This lake is a mile and thirty chains long from north to south, and fifty chains broad. The water here, too, is beautifully clear. The shores are sandy and support Banksian pine along with some birch and spruce. On the eastern shore, and on a hill to the west, there are exposures of reddish conglomerate. The lake is emptied by a shallow stream flowing to the northeast. From the head of a bay at the northern end of the lake a portage leads north for one mile and three-quarters to a beaver pond, five chains in diameter. This is drained by a small stream, sixty chains in length, flowing northeast to the Black river. A portage leads from the beaver pond along the bank of this stream to the last-named river, which it reaches about fifty chains below the mouth of the Kawanaska river.

KEKEKWABIK LAKE.

The canoe route from Gull lake to the Black river is by way of Swan and Kekekwabik lakes and the White Clay river. Kekekwabik lake lies one and a half miles northeast of the point where we turned up the stream draining Swan and Gull lakes, as we came north from the height of land portage. It is one mile long and from ten to twelve chains broad. On the west side, near the northern end, is a steep cliff of conglomerate eighty feet high. Forty chains south there is a fine-grained reddish-brown conglomerate, and farther still to the south the prevailing diorite is seen. On the east side there are exposures of diorite, quartzite and also one of feldspathic agglomerate. Ten chains to the west there is a narrow lake fifty chains long. Westward, there is a clump of white pine among the small spruce, birch and Banksian pine which here abound. Half a mile to the east of Kekekwabik lake lies Lloyd lake, one and a quarter miles long and half a mile broad. On its shores are exposed slate and Huronian greenstone. The lake is drained by a stream entering the White Clay river half a mile below Kekekwabik lake.

White Clay River.

For two miles and a quarter below Kekekwabik lake the White Clay is a sluggish stream from thirty to forty feet wide. Near the mouth of the stream draining Lloyd lake we find clay banks which extend north for a mile. A mile and a quarter north of Kekekwabik lake the river bends to the northeast. Here we went inland to the west. The clay belt which consists of rich sandy loam extends back thirty chains. Three-quarters of a mile farther to the northwest there is a high hill showing exposures of slate and conglomerate, the dip of the slate being about vertical. Swampy land stretches far to the west and eastward across the White Clay river.

A mile below the eastward bend in the river there is a small rapid over a diorite ridge, which is passed by a short portage. One mile and a quarter farther on there is a portage of fifteen chains on the west bank to avoid a fall and rapids over a diorite outcrop. Here the river bends again and proceeds about north to the Black river. Below this portage the river is narrow and has a swift current. There is a succession of small rapids over boulders lying in the bed of the stream. The banks are quite high, and are composed of a sandy white clay. Farther on there are two portages; at the second there is a fall of twenty feet over a ridge of diorite. Below this the current is less rapid, and the river pursues a winding course through swampy land to the Black river.

The Black River.

The Black river, where the White Clay enters it, is a chain and a half wide, and has no perceptible current. On either side are low clay banks. Twenty chains above the mouth of the White Clay, the foot of a rocky hill reaches down to the shore. The hill, which is one hundred feet high (aneroid), shows exposures of diorite carrying visible quantities of quartz. The strike is about east and west. To the south and east, the country is quite hilly; to the north, the land is fairly level with a few hills rising into view; to the west, the prospect is cut off by a few high hills about two and a half miles away. At the foot of the hill the river takes a bend to the north for a mile and a half, when it bends back again to the southeast, entering a region of hilly country.

Proceeding down the Black river we find it retains its sluggish nature for a distance of six miles. Several small streams flow into it and it gradually increases in size. Small spruce and alders are plentiful along its banks. Among these are scattered occasional small clumps of large spruce. Two miles below the mouth of the White Clay a rocky ridge comes down almost to the river. This rises towards the south to a height of one hundred feet (aneroid). The rock is a schistose diorite carrying innumerable small veinlets of quartz, none of which however are large enough to be worth sampling. The general strike of the rock is N 20° E.

Kawanaska River and Bolton Lake.

Two miles farther on we come to the mouth of the Kawanaska river. This river has not the size attributed to it on the sketch map of the Abitibi region accompanying the Summary Report of the Geological Survey for 1901. It is in reality only ten chains long and drains a lake [2] whose southern end lies only five chains from the Black river. This lake extends sixty-five chains north and south and is fifty chains wide at its northern end. The western shore is low and swampy, and to the north there is muskeg. The eastern shore is rocky, and the rising land supports large spruce and poplar. Near the south end of the lake a very badly decomposed rock outcrops, which carries a large proportion of magnetite. Farther north along the shore the ordinary greenstone is exposed in several places. At a point on the north shore there is

[2] Marked Bolton lake on Mr. Speight's plan of territory through which he ran the meridian line.

an exposure of a fine-grained, grayish trap-like rock showing at the water's edge. Near this several water-worn limestone fragments were seen, some of which contained fossil remains of corals and brachiopoda. These were examined by Mr. J. F. Whiteaves of the Geological Survey, Ottawa, who states that the coral is probably a *Favosites*. The brachiopoda were too badly eroded to be determined specifically or even generically. No sedimentary rocks were seen in this vicinity, so it is likely the limestone fragments were transported during the glacial epoch from the Devonian strata in the vicinity of James bay. Glacial striae were observed in several places along the shores. Their direction was N 15° W.

A SPRUCE FOREST.

From the northeast angle of this lake we walked two miles and a half to the northeast. For a mile and a half the land is quite level, and the soil is a sandy clay with spruce from twelve to sixteen inches in diameter. Dry tamarac were very plentiful, but not a green tamarac was to be seen. Beyond this clay land we cross a sandy area half a mile wide, which brings us to the foot of a hill whose summit (400 feet high, aneroid) lies about fifty chains farther to the northeast. Exposures of badly weathered diorite are common. Spruce from eight to ten inches in diameter abounds, along with birch and balsam. To the west we have a fine view for five or six miles over level country. This appears to be timbered chiefly with spruce, scattered through which are patches of Banksian pine, poplar and birch.

The meridian line crosses the Black river forty chains below the mouth of the Kawanaska. Here an area of clay land stretches to the west for over a mile. One mile and a quarter south of the river, there is a hill on the line 320 feet in height, and half a mile farther south there is another almost as high. On the former the rock exposed is mostly diabase, showing a good deal of weathered feldspar, and in close association with it there is a fine-grained schistose diorite carrying grains of pyrite. On the other hill there are outcrops of a dark, greenish-black, lustrous diorite. These hills are the highest in this locality. To the north and west the country is quite level, and no high elevations appear except to the east and northeast.

FALLS ON THE RIVER.

Returning to the river we proceed down stream a mile and a half where we come to the first obstruction to navigation. Here there is a fall with a series of rapids below, the total drop being forty feet (aneroid). The fall is occasioned by a ridge of Huronian diorite striking about N 45° E. It is passed by a portage of thirty chains on the northeast side. Below this portage exposures of diorite are frequent for a mile, when we come to a small rapid ; a mile below this is another rapid over large rounded glacier boulders. Neither of these requires a portage. From the second rapid to the next portage, a mile distant, the river is broad and deep, and free from obstruction.

At the second portage a ridge of pyritous diorite, in which are scattered veinlets of quartz and epidote, crosses the line from east to west. This presents a perpendicular face to the north thirty-five feet in height. At the foot of the fall there are rapids with a descent of fifteen feet. This fall would no doubt furnish valuable water power, for even in August there was a large flow of water over it. It is passed by a portage of thirty chains on the south-west bank.

Below the foot of the rapids for the first half-mile the banks are not very high, and they soon drop into low flat swamps of spruce and tamarac. Farther down they increase in height and rock exposures are frequent. The rock is a grayish-green diorite more or less schistose, and often containing veinlets of quartz and more rarely epidote. The rock examined in thin sections is seen to be very badly altered. Feldspar is present in slender needles in an indistinct base of hornblende and chlorite. Glacial striae N 12° to 15° W are abundant. The

clay banks are in places seventy-five to eighty feet high (aneroid). To the west the land is rolling, and comparatively free from boulders and rock exposures, and as the clay has mixed with it some sand it ought to form an easily workable soil.

Flat rapids are numerous below the fall mentioned above, and continue for three miles before we come to one where it is necessary to portage. Here we have a fall of about five feet over a ridge of diorite. The rapid is passed by a portage of three chains on the southwest bank. Believing we were now in the vicinity of the point where Messrs. Taylor and Baker turned back in 1900, we returned to the lake drained by the Kawanaska river.

Black River to Abitibi River.

From the Black river to the Abitibi river, twenty-five miles distant, there are no navigable waterways in proximity to the meridian line. Seven miles north of where the Black river crosses the line we find another stream crossing it, which flows to the northwest. This is the Pike river, a tributary of the Black. Progress on this stream is barred a short distance on each side of the line by rapids and driftwood. Nine miles farther north there is a small stream which pursues a winding course northward, gradually increasing in size. It remains close to the line for a distance of four miles, when it turns to the northwestward. A mile and a half north of here we went westward to endeavor to locate the stream or any lake into which it may empty, but we were unsuccessful in our quest; so it is probable the stream pursues a westward course from where it leaves the line to join the Shallow river which empties into the Black, six and a half miles above the Abitibi.

On the Margin of the Great Clay Belt.

The country between the Black and the Abitibi rivers traversed by us lies along the southern edge of the great clay belt which stretches westward from Quebec across the districts of Nipissing, Algoma, and Thunder Bay. Between the two rivers there are few elevations more than 75 feet high. Nine miles south of Couchiching falls on the Abitibi there is a hill attaining an elevation of 275 feet (aneroid). From this the high hills south of the Black river—seventeen miles distant—could be plainly seen. To the north and west the range of vision extended even farther. Eastward the country is slightly rougher, but no high hills were visible. Many small ridges are met with which rise from ten to thirty or forty feet above the level of the surrounding country; these invariably show exposures of Huronian diorite, usually carrying desseminated particles of pyrite, and occasionally schistose in character. Near the Pike river one of the Indians in our party found a fragment of rock in which particles of chalcopyrite were embedded in calcite. This outcrop I was unable to locate.

The soil over a large part of this area is clay and clay loam, but there are also many swamps and occasional sandy plains; in a few places too, there are areas of muskeg. As the land is mostly low-lying, the impervious nature of the soil prevents the filtration of water, consequently we find a luxuriant growth of moss over most of the country. For three miles north of the point where the line crosses the Black river, the soil is whitish sand, but between that and the Pike river there is rolling clay land well watered by many small streams of hard water. North of the Pike river there are a few areas of muskeg, notably in the vicinity of the thirtieth and forty-third miles of the meridian line. Extensive swampy areas also occur, but these usually have a subsoil of clay one or two feet beneath the surface. Clay land of course predominates.

Pulpwood Forests and Good Soil.

About three miles north of the Black river the northern limit of the area of second growth timber crosses the meridian line. From here to the Abitibi river large timber prevails. The

following varieties occur : Spruce, poplar, balsam, birch, balm of gilead and Banksian pine. Almost everywhere there is a dense growth of small black alders which makes progress slow and difficult. Spruce and poplar form seventy-five per cent. of the timber standing. These attain a large size, the diameter of the spruce being often sixteen inches, and that of the poplar twenty inches. The spruce is tall and healthy, and ought to furnish a very large supply of pulpwood. The poplar might also be utilized for pulpwood or sawlogs, but a good deal of it is faulty.

This supply of pulpwood is not now available, as it lies north of the height of land. However, should the Temiscaming railway be pushed forward towards James bay it would cross this area. With the advent of modern means of communication with the older settled parts of the Province to the south, this country ought to be marked by an era of rapid development. Its pulpwood forests would form a valuable asset and when these were cleared off, there would be an opportunity for agricultural pursuits which ought to be attended with favorable results, for the clay loam of this district should form an easily workable soil, mixed as it is with a considerable proportion of sand. The fact, too, that this land is farther south than the southern boundary of Manitoba shows that there is nothing in the latitude to prevent successful cultivation of the soil ; and, in addition, with the removal of the forests the climate, not even now severe, would become much milder.

Summary.

Geology :—Laurentian granite was seen near both the southeastern and southwestern corners of Eby. Elsewhere Huronian rocks are exposed. Of these there is a considerable variety, many of which are of fragmental origin. The following types were seen :—Diorite, diabase, brecciated conglomerate, slate, graywacké, hornblende schist, etc. As the rock outcrops of the district explored are, as a rule, separated by areas of sand, swampy or clayey soil, the relations of the different types could be seldom worked out.

With the exception of the indications of magnetite, chalcopyrite, and galena mentioned elsewhere, no minerals of value were found, but of the whole district south of the clay belt it may be said that it is not unfavorable to the occurrence of economic minerals.

Timber :—As before mentioned, extensive areas of large spruce and poplar, along with a smaller proportion of balsam, balm of gilead, Banksian pine, etc., extend from twenty to twenty-five miles south of the Abitibi as far as the latter stream. South of this area the timber is all second growth, and so is valueless from an economic point of view. The varieties occurring are Banksian pine, white and yellow birch, poplar, balsam, ash, soft maple, etc.

Soil :—South of the clay belt previously described, the country is rougher, being dotted with many small rocky ridges, and marked by hills rising above the general level, but rarely exceeding 100 feet in height. These are separated usually by swampy and sandy areas. Clay belts are met with along the rivers, but they rarely extend far back.

Climate :—The climate during the summer is usually moderate. The highest temperature observed was 84° Fahr. On three occasions, namely, the nights of 17th and 18th August and 4th September, the temperature dropped below freezing point. From the reports of those who worked to the north and west of the district in 1900 we learn that frosts are not usual before September, so it is likely that the occurrence of frost last summer was exceptional. The rainfall was fairly plentiful, but not excessive.

Water power :—On the Blanche river there are numerous falls and rapids which would furnish an abundance of water power, for the volume of water carried down by this river is large. On the Black river, too, at the first and second portages below the White Clay river there are falls, respectively forty and forty-six feet in height, which might be utilized.

Fruits :—The native fruits observed were blueberries, raspberries, low and high bush cranberries, and strawberries ; none of these were plentiful. Blueberries were found on a few

burnt hills, and raspberries usually on clay soil, where the growth of timber had been thinned by windfalls.

Fauna :—Moose are very plentiful south of the Black river, especially around the headwaters of that stream. Their tracks were visible almost everywhere, and over thirty were seen by us during the summer. Red deer are almost entirely absent, rarely coming so far north. Caribou are scarce. Black bears are plentiful. Their tracks were frequently seen, and we found many old logs which had been torn up by them in quest of ants. Colonies of beaver appear to be fairly plentiful throughout the whole district, and some fine beaver dams where observed. Muskrats are very common. The rabbit, marten, fisher, otter and skunk are present in small numbers.

Birds are not numerous. The following were seen : Duck, spruce partridge, bald-headed eagle, bittern, raven, loon, gull, wheat-bird, and swallow.

Fish :—Pike and pickerel were abundant in Round lake, and our Indian guides informed us that maskalonge are also caught there. Elsewhere fish were not plentiful. The brooks and streams in the vicinity of the height of land are too muddy to form a suitable habitat for brook trout.

Before closing I wish to convey to the following gentlemen my sincere thanks for valuable information and assistance : Prof. W. G. Miller, Provincial Geologist and Inspector of Mines ; Mr. T. B. Speight, O. L. S., Toronto ; Prof. R. W. Brock, M.A.; and Mr. M. B. Baker, B.A., B.Sc., of Queen's University.

NOTES ON ROCKS.

Ridge 20 chains south of Kenogami lake, lot 6 in the fifth concession, Eby : The rock is hypidiomorphic-granular in texture and fine-grained. Examined under the microscope the prevailing constituents are seen to be hypersthene and hornblende. A few small scattered grains of biotite are present surrounded by hypersthene. Occupying the spaces between the colored constituents we find calcite and feldspar plentifully present, the latter altered to saussurite. Quartz is present in very small amount associated with the feldspar. The rock may be called a hypersthene-diorite.

Township of Eby, south end of lot 3 in the fourth concession : A thin section shows the rock to be made up chiefly of greenish hornblende in stout tabular masses ; also, less frequently, in thin strips. The interstices are filled with lime-soda feldspar. The rock is a diorite.

Lake Anikojigami, east shore near head of lake : A grayish green rock of aphanitic texture. The microscope shows the presence of narrow laths of lime-soda feldspar, hence the rock is a diabase. The feldspar laths lie in a very fine-grained matrix of pyroxene, hornblende and feldspar. The latter is badly altered, principally to epidote.

Hill near south shore of Black river, 20 chains above mouth of White Clay river : Lime-soda feldspar and the alteration minerals saussurite and calcite form about 60 per cent. of the rock. Hornblende, pale green in color, is also plentiful in irregular plates and grains. Quartz in scattered grains is plentiful. The rock is a quartz diorite.

Hill at 19th mile post on meridian line : The rock is a diabase. The feldspar, which is the oldest constituent, is nowhere fresh, being altered principally to saussurite. The colored constituents are hornblende and diopside, the former in irregular grains, the latter in clear, colorless lath-like strips. Small quantities of calcite were also noticed.

Black river, second portage below mouth of Kawanaska river : Augite occurs plentifully in grains. This forms the most striking constituent, as it is much less altered than the other colored constituents. Hornblende and its alteration product, chlorite, form a large proportion

of the rock. Feldspars (lime-soda varieties predominating ; orthoclase in small amount) constitute the remainder of the rock. All are badly altered, principally to epidote. A few grains of pyrite occur. The rock may be called an augite diorite.

Hill three-quarters of a mile east of 37th mile of meridian line : The rock is hypidiomorphic-granular in texture. When examined microscopically it appears to be composed principally of augite. When examined in thin sections the augite is seen to be in large irregular grains and elongated strips. Hornblende in narrow strips is present sparingly. Feldspar is present in small amount, occupying the interstices between the colored constituents. This is completely altered to saussurite, etc. A few grains of quartz and also a few of altered ilmenite were noticed.

PEAT FUEL. ITS MANUFACTURE AND USE.

BY W. E. H. CARTER.

[Note by the Director :—The following Report on Peat Fuel was issued in February 1903, as Bulletin No. 5 of the Bureau of Mines, but in view of the widespread interest in the subject, it is, with slight additions, re-printed herewith. The data contained in the Report are drawn from many sources, but so far as the industry in Ontario is concerned, they are in large part the result of personal examination of the peat plants and bogs of the Province by Mr. Carter. Determinations of peat and peat gas were made by Mr. J. Walter Wells, who also reports on practical experience with peat fuel burned at the Provincial Assay Office, Belleville. Thanks are due to Mr. J. G. Thaulow, engineer to the Norwegian Government, for permission to make use of his valuable report on peat fuel in Europe and America, to Peat Industries, Limited, the Peat Machinery Supply Company, Limited, and to others connected with the industry, for assistance rendered. Discussion is restricted solely to the value and use of peat for fuel and the processes employed for manufacturing it for that purpose, this being the aspect of the subject which confers upon it pressing, if not vital, importance. There are many other economic uses for peat, but they are not dealt with in this Report.—T. W. G.]

Life in a northern climate implies the free use of fuel. Abundance of fuel means comfort and the smooth working of the social and industrial machine; scarcity means inconvenience, distress and the dislocation of industries; absolute want of it would render the temperate regions of the earth uninhabitable. The prime necessity of ample supplies of so obviously important an article requires no proof; but if any were needed it has been thrust upon the people of Canada by the recent strike of the anthracite coal miners of Pennsylvania, and in a way calculated to open the eyes of the most unthinking. A generation ago such a strike would have excited little interest here, because the splendid hardwood forests of southern Ontario had not then disappeared, and good "body" beech and maple warmed the houses and generated steam in the mills and factories of the time. To-day the situation is changed. The dwindling forests have retreated to such a distance from "older" Ontario as to make wood expensive and scarce. All things considered, anthracite for domestic use and bituminous coal for steam raising are preferable to wood; and so partly for this reason, and partly because of the diminishing supplies of the native fuel and the increased facilities for procuring the foreign article, it has come about that the urban and town dwellers of Ontario almost wholly, and to a lesser, but still appreciable extent, farmers and villagers also now rely entirely upon coal for fuel. The number of coal-users is constantly increasing, and the area in which wood is the chief article of fuel is yearly retreating farther to the north.

One effect of the change has been to place the people of Ontario in a position of absolute and abject dependence on the coal barons—or coal miners, it matters little which—of a foreign state for the right to live. As to the merits of the dispute between the coal companies and the mine workers, the people of Ontario may have their opinion, but they have no voice whatever in its settlement, and can have no share in framing laws which might make a recurrence of it impossible. Their only privilege is to accept with gratitude whatever coal their dealers can induce the companies in Pennsylvania, whether mining or railway, to send across the border, and to pay such prices therefor as may be dictated by business slightly tempered with philanthropy.

It is not an easy matter to arrive at the total amount annually paid out for fuel by the people of Ontario. The quantity and cost of the coal consumed can be ascertained with much exactness, since it is practically all imported from a foreign country and the figures are therefore to be found in the trade and navigation tables, but the production and consumption of wood, which constitutes the source of heat for one-half the population or more, is not so easy to estimate. An

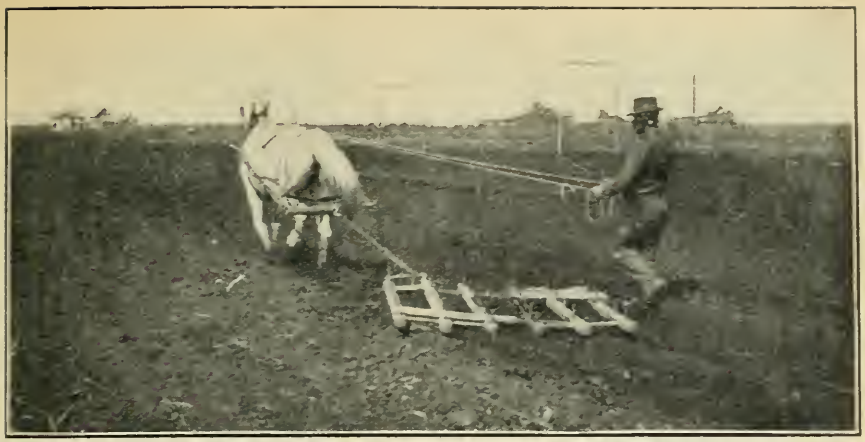
attempt, however, may be made. According to the census of 1901 the population of Ontario was 2,182,947 persons, of whom 935,978 dwelt in the cities, towns and incorporated villages of the Province. The bulk of the people, 1,246,969 in number, are classed as "rural," and are made up of the farming community and those living in hamlets and places too small to be incorporated as separate municipalities. In view of the originally wooded condition of the country, it is probably within the mark to assume that wood is still the fuel mainly used by the rural population. True, much wood is used in the cities, towns and villages, and much coal in the country ; but roughly speaking, urban dwellers are users of coal and country-dwellers of wood Now, taking into account all the purposes for which wood is employed as fuel, including the raising of steam as well as domestic uses, and having regard also to the fact that the original abundance of wood created the habit of using it with little regard to economy,—a habit which, despite the changed conditions, still survives—it does not seem excessive to place the quantity of wood annually consumed for all purposes at $2\frac{1}{3}$ cords per head of the rural population. At this rate the consumption of an ordinary family comprising five persons would be about 12 cords a year. To supply the community at this rate would require say 2,900,000 cords of wood per annum, the cost of which, taking one quality with another, may be placed at $1.50 per cord. Good, dry hardwood cannot be purchased anywhere now for such a price, but much of the wood burned for fuel consists of the inferior varieties, such as ash, elm, tamarack, or the branches and limbs of the more valuable kinds, and is sold at a smaller price. At $1.50 per cord, the value of the wood burned every year would be $4,350,000.

The imports of anthracite into Ontario during the twelve months ending 30th June 1900, (the last fiscal year in which imports were classified according to Provinces) were 1,075,441 tons, valued at $4,406,231, and of bituminous coal for home consumption, 2,362,115 tons, worth with the duty added $5,357,373. The quantity of coal brought from Nova Scotia in a normal year is so small as to be hardly worth taking into account, consequently the imports of anthracite and bituminous coal may be regarded as covering the total consumption. Adding then the several items together, and leaving out of consideration petroleum and natural gas, which have a restricted use for fuel, we reach the following as representing the fuel bill of the people of Ontario for a year :—

	Value.
Anthracite, 1,075,441 tons	$4,406,231
Bituminous coal, 2,362,115 tons	5,357,373
Wood, say 2,900,000 cords	4,350,000
Total	$14,113,604

The expenditure annually of so large a sum of money stamps the fuel question at once as one of the first importance, and in any circumstances it would be a proper subject of inquiry whether the sources and supply of so necessary and largely used an article could not be augmented ; but there is a double motive for such inquiry when it has been brought home to us that one of the principal items on our list of fuels is but a broken reed.

The old adage of the advantage of having several strings to one's bow is applicable to this question of fuel. Those who, finding it impossible to procure coal during the present winter have had recourse to wood, have found themselves not in such bad case after all, considering the fact that their stoves, furnaces, etc., were constructed to consume coal only. If still another fuel could be added to the list, comparable in efficiency to coal or wood, the situation would be decidedly improved. If, too, the preparation of this article would create an entirely new industry of the first magnitude, employing labor and capital on a very large scale, utilizing resources now almost entirely dormant, and substituting a native product for one of foreign origin, there would seem to be every reason, both from the private and the public point of view, for welcoming the introduction of the new fuel. The peat bogs of Ontario are, it is believed, quite capable of furnishing such a fuel and sustaining such an industry.



Welland bog; harrowing the peat.

Welland bog; scraping the peat.

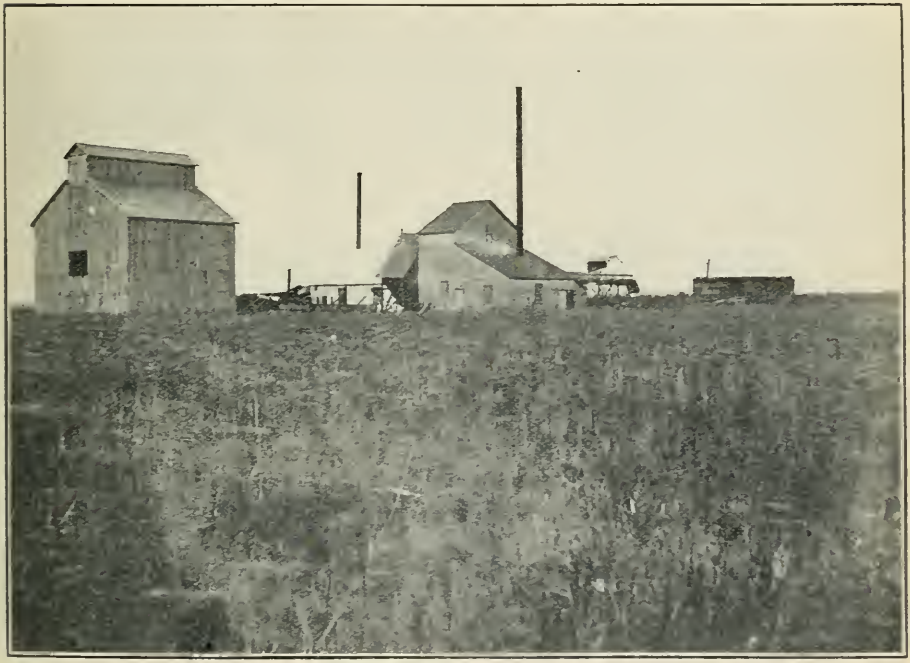
Welland peat works.

Brockville peat bog

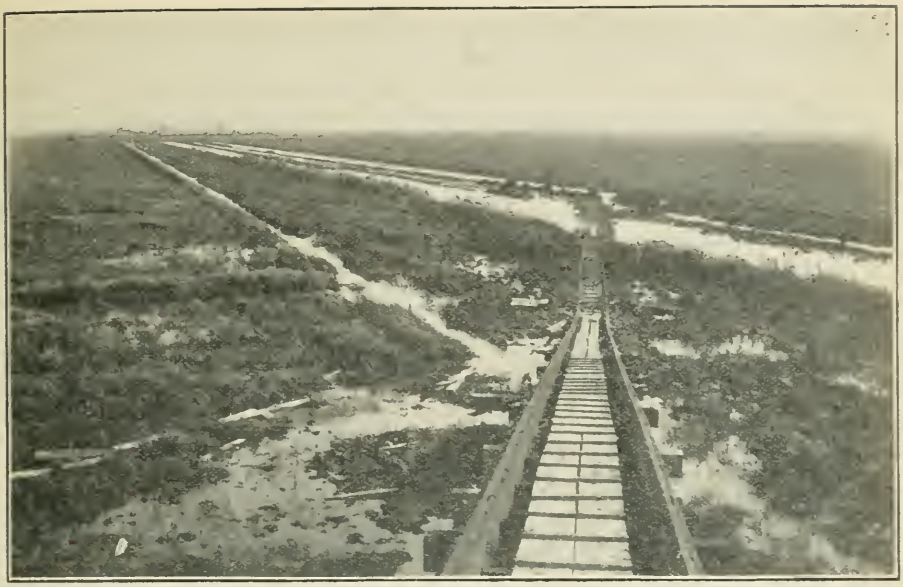
Sounding a peat bog.

A Norwegian peat bog.

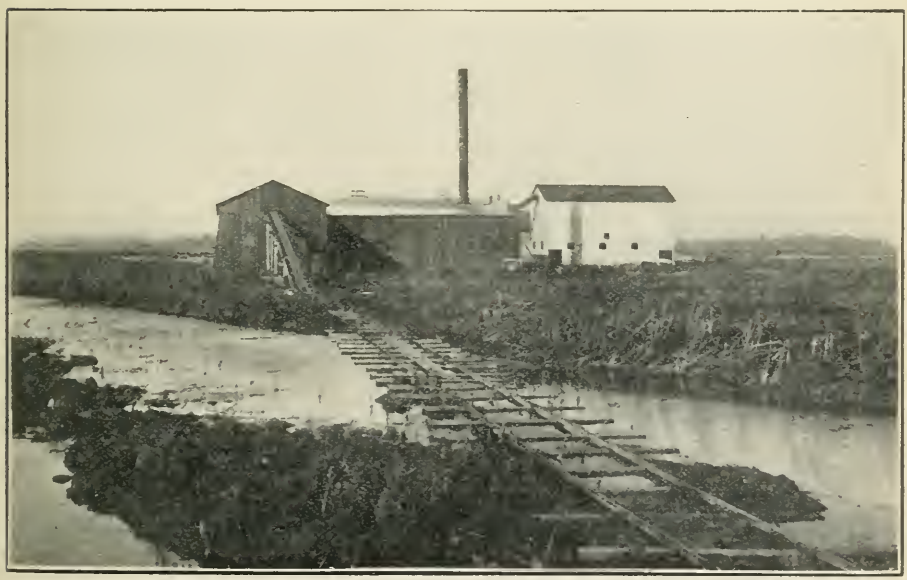
Brockville peat bog and works.



Brunner peat bog and works.



Rondeau peat bog.



Rondeau peat bog and works.

Peat Fuel No Novelty.

Peat fuel, though new here, is no novelty in older lands. In Scotland and Ireland in the ordinary or air-dried form it has been burned for many centuries, and still in places survives the competition of coal from the English and Scottish mines. In the countries of continental Europe, especially Germany, Holland, Russia, Denmark and Sweden, there is annually a large and apparently increasing consumption of peat. In central Sweden it is said that as much as one million tons of peat are prepared and used yearly, and two million tons in the whole country. Not only is peat in demand as domestic fuel for cooking and producing warmth, but in metallurgical processes, in steel and glass furnaces, for firing locomotive boilers, for generating electric power and for many other purposes it is used in solid or gaseous form. Germany is believed to have more fuel in peat than in coal, and much ingenuity has been displayed in that country and elsewhere in devising processes and machinery for preparing it. In short, so far from peat being an obsolete fuel, it is coming more and more into use as its manufacture is being perfected and a better article produced.

The Comparison Must Be with Coal.

Coal is the standard by which any competing fuel must be measured, though there are substances which for special purposes are equal or superior. Some petroleums, for instance, give better results in locomotive or steamship boilers, costing less and occupying smaller space for the quantity required to produce a given amount of power. Charcoal from wood makes a better product in the iron blast furnace than mineral coke, because of its greater freedom from sulphur, which deteriorates the quality of the pig. In certain other respects, such as cleanliness of handling and completeness of combustion, coal compares unfavorably with wood and peat: but in the main, and for general use coal (including both anthracite and bituminous) is the fuel which at present holds first place in public esteem, and no doubt rightly so.

The comparison of peat with coal must be at two points (1) efficiency, (2) price. Unless there is a fair equality in the result of these factors, peat must be ruled out. If on the one hand it is so far below the level of coal in calorific value that no matter at what price produced it would not be used where coal could be had: or if on the other, it cannot be produced and sold for a price at least as low as that for which the equivalent in heating value of coal could be bought, all efforts to introduce peat will be unavailing except at times when nothing else can be had.

The fact that peat continues to be used in many countries concurrently with coal where there is no difficulty in procuring the latter, is proof that for some purposes at least it is equally well adapted and not more expensive. The Holland housewives, proverbial for their neatness, will have no other fuel, and in the Dutch brick-yards peat only is used.

Peat is in reality incipient coal. The coal beds, which are the basis of modern arts and industries, were laid down ages ago in some such way as peat bogs are now being formed, except perhaps that in most cases trees were the source of the carbon of the coal instead of the mosses or aquatic plants of which peat bogs are composed. A regular gradation can be traced beginning with peat or wood and passing through lignite, bituminous coal, anthracite and even graphite, the various stages of the process depending upon the degree of pressure or heat which has been exerted; and doubtless the peat bogs of to-day, if not sooner consumed, may in subsequent ages be metamorphosed into seams of coal for the benefit of the coming man. Being incipient coal, peat contains less carbon and is inferior in specific gravity to coal, though, as has already been pointed out, its properties in this respect must be considered in relation to the price at which it can be produced and sold.

The Place of Peat among Fuels.

The following figures taken from Percy's Metallurgy will serve to show the place of peat among the fuels, so far as its chemical composition and physical properties are concerned :

Substance.	Carbon C.	Hydrogen H.	Oxygen O.	Nitrogen N.	Sulphur S.	Ash.	Specific gravity
Peat	54.02	5.21	28 18	2.30	.56	9 73	.850
Lignite	65.31	5.63	22 86	.57	2.36	2.27	1.129
Bituminous coal	78.69	6.00	10.07	2.37	1.51	1.36	1.259
Anthracite	90.39	3.28	2.98	.83	.91	1.61	1 392

The above analyses are exclusive of water, which in the peat amounted to 25.56 and in the lignite to 34.66 per cent.

Comparing the calorific value or heating effect of the various kinds of fuel, Thurston, in his Elements of Engineering, gives the following figures :

Fuel.	Calorific power.		Water vaporized at boiling point. Parts by one part.
	Relative.	Absolute, B.T.U.	
Coal, anthracite	1.020	14,833	14.98
" bituminous	1.017	14,796	14 95
" lignite, dry	0.700	10,150	10 35
Peat, kiln dried	0.700	10,150	10.25
" air dried	0.526	7,650	7.73
Wood, kiln dried	0.551	8 029	8 10
" air dried	0.439	6,385	6.45

The absolute calorific power is expressed in British thermal units (B. T. U.), one such unit being the quantity of heat required to raise a pound of water from the temperature 39.1° to 40.1° Fahrenheit. The heating value of peat briquettes is placed at about two-thirds that of coal, but it is not possible to give more than approximate ratios, for the reason that neither coal nor peat is a definite chemical compound, and both vary in composition very considerably within certain limits.

As between peat in its several classes and bituminous coal, the comparison is as shown by the following figures :

Material.	Weight per cubic foot as piled pounds.	Relative weight for same heating value.	Relative bulk for same heating value.	Specific gravity.
Cut peat	13	2.99	14 36	.50
Machine peat	21	2 45	2.56	.95
Peat briquettes	56	2.04	2.14	1 12
Bituminous coal	60	1.36	1.43	1.30
Anthracite	63	1	1.	1.45

The comparison is with anthracite rather than with bituminous coal, for the reason that the sphere of usefulness for peat is in the home, rather than the factory or the mill. For steam-raising purposes, run-of-mine bituminous coal or screenings will probably be found more economical in use. One advantage peat possesses over any form of coal is the much smaller percentage of sulphur which it contains, hence its use is less injurious to grate-bars, boiler tubes and the like.

Anthracite and Peat Compared.

The principal uses of anthracite are in cooking and heating, being burned for the former purpose in stoves and ranges, and for the latter in stoves and furnaces of varying design. The large percentage of carbon and high specific gravity of anthracite constitute it a dense and lasting fuel, requiring little attention after being once ignited, and, as householders know, there is little difficulty in maintaining a fire in stove or furnace over night ready for fresh fuel in the morning.

Peat when first placed on the fire burns with a short blue flame, continuing to do so until the grate spaces become covered with embers, when it emits an intense yellow glow and short flame of the same color. It is now giving out an intense heat, which may be easily and accurately controlled by adjusting the draught. A peat fire may be made to last over night by banking it properly and closely stopping all the draughts Once well lighted a peat fire will not go out until every atom of fuel has been consumed. This is due to the fact that it requires very little oxygen to sustain its combustion.

The ordinary methods of burning fuel, whether coal or wood, are very wasteful, only a comparatively small proportion of the theoretical heating value being utilized. This is partly due to the large amount of air which finds access to the fuel, carrying off the heated products of combustion into the chimney or smoke-stack before they have performed their work. With coal the clinkers and live embers which drop through the grate bars are an additional source of loss. There are similar losses in the case of peat when burned in apparatus not well suited for its combustion, such as ordinary stoves or furnaces intended for coal or wood. Hence much attention has been given in Europe to specially constructed stoves for burning peat, in the invention of which the Danes appear to take the lead. Further mention of these is made below.

An Actual Test of Peat Fuel.

At the Provincial Assay Office, Belleville, Ontario, peat briquettes alone were used as fuel for a portion of the winter of 1901-2, and the results are given in the report of Mr. J. Walter Wells, then Provincial Assayer. The office building contained upper and lower flats with a total air space of 23,000 cubic feet, for heating which two coal stoves were ordinarily employed. The same stoves—one an Imperial Oxford Air-tight Heater, and the other a Fire King—were used for burning the peat. The stoves were filled whenever necessary, and no special attempt was made to economize fuel. From careful observations covering a period of twenty days the following figures were obtained: Average temperature of outside air, 21° Fahr.; ditto inside air, 56°; ditto upper flat, 61°; ditto lower flat front room, 61°; back room, 53° The peat was consumed at the rate of 186 lbs. per day, at a cost of 37 cents, the price of the fuel being $4.00 per ton, delivered. Starting or replenishing the fire caused smoke, and it was found advisable to prepare for adding fuel by creating a strong draught to carry off this smoke, after which the draught could again be cut off. The stoves required feeding about six times a day, or once every two or three hours. Fire was maintained during the night by covering the peat with ashes and closing all the draughts When the latter were opened in the morning the fire would spring into life again. No visible amount of soot was deposited in the flues.

In these stoves, as well as in several types of cooking ranges in which peat briquettes were experimentally burned last winter, the gratings were found too coarse, and it was not practicable to prevent an excess of draught, or to wholly check loss of fragments falling into the ashes below. This difficulty was partially overcome by covering the bars with clinkers or wire netting. These observations agree with the experience of the people of Beaverton, where peat briquettes made by the Dobson process are in common use as fuel.

For many purposes, such as culinary uses, it is more important to have an intense heat for a short time than a lower heat for a longer time, and the rapidity with which peat reaches a high temperature renders it very useful in such cases. Often a burning briquette becomes white hot over its entire surface while the interior, if broken into, is seen to be quite cool.

Peat makes no clinker, but leaves considerable ash, depending in this respect upon the composition of the bog from which it is made. The ashes are light and powdery, and in weight are usually greater proportionally than those of wood, though not greater than those of coal as ordinarily burned, When peat burns without any particles falling through the grate bars, there is absolutely no unconsumed fuel, whereas with coal the percentage of half-burned fragments which escape with the ashes is usually considerable. Peat ashes consist partly of the inorganic substances taken up by the growing mosses or plants during their lifetime, but chiefly of the clay, sand and silt drained or blown into the bog from the surrounding soil. They occasionally run high in alkaline earths, carrying carbonates, phospate of lime, potash, etc., and when rich in phosphoric acid and potash they are suitable for fertilizing purposes.

Peat has some disadvantages, one of which is the considerable proportion of water which it contains even in the briquetted form, thus lowering its calorific value. Another, as noted above, is the tendency in ordinary grates of unconsumed particles to escape into the ash-box.

THE QUESTION OF PRICE.

Then, as to price, which in some respects is a consideration paramount even to quality. The cost of producing "machine" peat in Europe is from 85 cents to $1.35 per ton ; of peat briquettes $2.15 per ton. As the detailed data set out in the following pages show, peat briquettes can be made in Ontario at about $1.00 per ton of 2,000 lbs. Allowing a suitable margin for profit, interest on investment, etc., it is evident that compressed peat fuel can be sold at the place of production for $3.00 per ton, and at a correspondingly greater figure if railway freights have to be paid. As a matter of fact, it has already been sold by one maker for two successive seasons at $3.00 per ton, and beyond doubt in this price was included a fair profit. Putting the theoretical value of peat briquettes at two-thirds that of coal, at $3.00 per ton their cost would be equivalent to anthracite at $4.50 per ton, and at $4.00 per ton to anthracite at $6.00 per ton. Such figures at once bring peat fuel into the economic arena, as it may be doubted whether with the effective control now exercised by the trusts over the production and sale of anthracite, we are likely to see it again drop to a lower retail level than $6.00 per ton. In the light of the facts brought out in this report, it will be surprising if the citizens of Ontario are not soon given their choice between compressed peat fuel and coal, instead of as at present being confined entirely to the latter.

European Methods of Manufacture.

The peat fuel industry being of comparatively recent origin in Ontario, and little having been accomplished in the United States, where the abundance of coal relegates the question to a position of minor importance, it is to the countries of Europe, where the peat industry is of venerable standing, that we must turn for fuller information as to cost and methods of manufacture. The government of Norway, where the fuel question is in almost the same position as it is in Ontario, both countries being without coal, and both being situated in a northern climate and containing within their borders many peat bogs, commissioned Mr. J. G. Thaulow, a mechanical engineer of that country, to investigate the peat industries of Europe and Canada, and his report dated June, 1902, contains much interesting and valuable information concerning costs and manufacturing methods in the countries which he visited. Mr. Thaulow's report is freely drawn upon in the present paper, and other available sources of information have been made use of. Comparisons with European countries in the matter of costs should be made

with care, because of the lower price commanded by labor there; but so far as climatic conditions are concerned, which play a very important part in the manufacture of peat fuel, there is no great difference between Ontario and the countries of central Europe, where peat is largely made and used. There is probably a longer summer season, more sunshine and less rain in Ontario than Denmark and Sweden, so that processes depending upon the weather such as outside drying, which are practicable there, ought to be even more successful here.

In European countries three kinds of peat fuel are known; (1) cut or "stick" peat, namely, the crude peat cut in blocks out of the bog and dried in the air, after which it is burned without further treatment; (2) "machine" peat, which is the name given to peat ground or macerated to a pulp while wet, sometimes with the addition of water, and then cut or moulded into blocks and dried with or without artificial heat; (3) peat briquettes made by artificially drying and compressing powdered peat.

Coke or charcoal is also made from peat and is used in the smelting of ores and other metallurgical processes. In converting the raw peat into charcoal practically the same range of by-products is obtained and made use of as in the coking of coal; but charcoal fuel is little used in this country, and it has not been thought necessary to make any extended allusion to this aspect of the subject in the present paper.

CUT PEAT.

The first mentioned variety, or cut peat, is the sort used by the poorer classes, who employ their own labor in the spring and summer in making it. Though constituting a fuel by no means to be despised, especially when taken from the decomposed layers of a good bog, cut peat is suited only for local use, because of its retaining, even when apparently quite dry, a considerable proportion of moisture, and because of its bulkiness and friability and consequent unfitness for transportation to long distances. This variety of peat can only be made from a dry or drainable bog. After digging, for which purpose a specially shaped spade is used, with a wing at one side, in order to cut out rectangular blocks, the latter are laid on the surface of the bog, where in a few days they lose sufficient water to be turned over and afterwards piled up. During the summer months the blocks of peat will dry down to a water content of about 30 per. cent., by which time they have shrunk to about one-quarter of their original size. Probably the larger proportion of the peat fuel used in Europe is of the cut or "stick" variety, its great recommendation being its cheapness. An able-bodied laborer can dig up the equivalent of $1\frac{1}{4}$ tons dried peat per day, and in most cases the digging and subsequent handling is done by himself and members of his family. The use of cut peat as fuel for general consumption is out of the question in Ontario.

MACHINE PEAT.

"Machine" peat is a compacter and better article. It is sold in large quantities in Holland, Germany, Austria, Denmark, Sweden and Russia, and is used not only for domestic purposes, but also in manufacturing, metallurgical and other industrial operations. A great many steam boilers, including railway locomotives, are fired with this variety of peat, while in breweries, distilleries and under salt pans in Germany, it is preferred to other fuel. In Austrian glass-works and brick yards it is also freely employed. Most of the peat consumed in Europe, except by the peasantry, is machine peat, and it forms in fact the only fuel for large bodies of the population. The methods of preparing it are very numerous, and much ingenuity has been displayed in inventing machinery and devising processes to suit varying conditions.

Two principal systems are distinguished in making machine peat, depending upon the treatment of the raw material immediately upon raising it from the bog. One plan is to digest the peat with the addition of water into a liquid mud, which is then poured into moulds in

the open air, and after losing some of its water, divided into blocks and allowed to dry. The product is sometimes called "knead" peat. The other and more commonly employed process consists of grinding or mincing the peat as it comes from the bog, into a soft plastic mass, which is then cut into bricks and dried.

A DANISH PEAT PLANT.

A well known and successful establishment for the manufacture of "knead" peat, is in operation at Sparkjer, Denmark, on a large scale. The works are either stationary or portable, in the latter case floating in the bog, where there is sufficient water. The peat, dug by hand or machines, is conveyed mechanically to the works, where water is added and it is passed through the mixing machines,—plain wooden boxes, containing rotating screw-shaped knives—whence it is elevated to a large tank, and afterwards taken in cars to the drying fields. These consist of fields of sandy soil covered with grass. Elevated flats or gentle slopes are preferred, well exposed to prevailing winds. The peat mixture is then poured into bottomless cast iron moulds, after standing a few hours in which sufficient water is absorbed by the sandy soil to consolidate the peat and allow the moulds to be removed. In three or four days the peat lumps or bricks are turned and subsequently piled in heaps. The whole drying process requires from three to six weeks, according to the weather, the finished product containing about 22 per cent. water.

At other works the dense peat liquid is poured in thick layers over the drying ground, and when in semi-dry state is rammed and cut into small bricks. By this method the drying capacity of each acre of ground is increased, and the labor cost reduced.

The cost of peat plants, such as those at Sparkjer, is about $80 per ton of daily production when of the portable variety, and about $135 per ton when stationary. In 1901 the total production of the Sparkjer establishment, which comprises a large number of individual works, was 25,000 tons of dry peat, which had a selling value of $54,000, or $2.16 per ton (2,240 lb.) The cost of production varied in the separate plants from 85 cents to $1.10 per ton f.o.b. railway cars. The laborers work by contract and earn on an average $1.35 per day. The power required is small, the product of one nominal horse-power being placed at 5 to 8 tons per day.

In the manufacture of ordinary machine peat more powerful machinery is used. After reducing by drainage the water content of the bog to 80 or 85 per cent, the peat is dug and and thrown at once into an elevator which carries it to the peat-mill. This may be either portable and capable of being moved on tracks laid on the surface of the bog, or stationary and placed at some central point. The mixing machine (see illustrations of Anrep's peat-milling machine) consists of a hollow iron cylinder or cone in which rotate one or two rollers set with screw ridges, which break up the peat and any accompanying small roots, thoroughly working the whole into a soft, plastic mass and forcing it out in long rectangular shape to be cut into bricks. These are then transported to the drying ground, either *terra firma* or bog. The drying process occupies from 6 to 8 weeks, and when finished the peat bricks contain about 22 per cent. water, below which point it is scarcely possible by air-drying to reduce the moisture in machine peat.

MILLS FOR MAKING MACHINE PEAT.

The mills or machines used in making machine peat are of various construction, but all incorporate very much the same principles. Their operations have proven so satisfactory that the demand for them has increased very greatly within the past year or two. The plant usually stands complete in itself on the bog, either all on the one portable platform, or with the locomobile, or power plant of engine and boiler, a short distance away and connected by belting.

The Akerman machine, manufactured by Akerman's Foundry and Mechanical Works, Eslof, Sweden, requires an 18-h p. engine and boiler, and can turn out from 20 to 25 tons machine peat per ten-hour day with the help of 15 men. With locomobile, rails, wagons and other requisites, the plant complete costs $1900.

The Anrep (or Anrys) peat machine, probably the most modern and approved, is the invention of Aleph Anrep (or Anrys) a Swedish engineer now resident in Russia, where over one thousand of them have been built and are in use. It is also now being constructed by the Munktell's Mechanical Works Company at Eskilstuna, Sweden. On some of the larger Russian bogs, often up to 20,000 acres in extent, 50 or 70 of these machines may be seen at work. In principle they are much the same as Akerman's machine, the main difference being that with the latter the locomobile and mill are separable, while with Anrep's they stand on the the same carriage. It is accounted superior to all other existing machines of the kind because of its greater capacity per man per day and consequently lower cost of production.

The Anrep machine is built in two sizes, the larger producing from 40 to 60 tons finished fuel per 10 hours with 28 workmen, and requiring 38 horse power. It costs $1,900 exclusive of power plant. The smaller type is built in light and heavy styles, the former turning out 20 tons peat fuel per 10 hours with 13 men, and consuming 19 horse power. It is sold for $830, exclusive of power plant. The stronger machine produces from 25 to 30 tons of finished fuel per 10 hours, employing 15 men and using 25 horse power, its price being $1,200, exclusive of power plant.

Another machine has recently been put on the market by the Abjorn Andersson's Mechanical Works Company of Svedela, Sweden, and a number are now in use. Several sizes are made, ranging in capacity from 20 to 40 tons finished peat per day. The machines proper cost from $215 to $675.

In Germany most of the peat-milling machines are made by R. Dolberg of Rostock and A. Heinen of Oldenburg They are similar in construction, and resemble the Swedish machines already described. Much hand labor is required in their operation, but they are able to produce 1½ to 2 tons peat fuel per man per day.

With wages ranging from 95 cents to $1.20, or averaging say $1.00 per day, at some of the large Swedish peat works machine peat is made at a total cost of $1.35 per ton, though this figure may vary appreciably one way or the other depending on the condition of the bog which affects the cost of labor alone to the extent of from 56 to 80 cents per ton.

Machine peat contracts very much in drying, the volume of the dried peat often being not more than one-sixth that of the original block. Thus the bricks acquire a very compact consistency, bearing a close resemblance to lignite both in appearance and density. In specific gravity it often surpasses water, but commonly weighs from 30 to 40 lb. per cubic foot. It will stand ordinary handling in being moved from place to place, is less hygroscopic than cut peat, and may easily be stored without absorbing moisture. In some places in Germany and Denmark the practice is to thatch the peat stacks to keep out the rain.

"Cut" and "machine" peat in their various methods of preparation almost exhaust the forms in which peat fuel is used in Europe, comparatively little pressed or briquetted peat being manufactured as yet. Of recent years, however, the briquetting of fuels has assumed large proportions, especially in Germany, where in 1901 the output of briquetted fuel was 1,643,416 tons. Of this quantity about half was used by the railways and one-third in factories and industrial works, the remainder being about equally divided in use between dwelling-houses and steamships. The principal substances used in making these briquettes are coal screenings or waste, and lignite, but peat is now also employed. In the case of peat an

attempt is made to carbonize it by heat and compression during the process of manufacture in order to give it greater fuel value. Briquetted fuels sold in 1901 at an average price of 13½ marks ($3.13) per ton wholesale.

In face of the general acceptability of machine peat, and the firmly established position of its manufacture in Europe, there is not the same inducement there to apply briquetting processes to peat as to other crude fuels which cannot be solidified or reduced in bulk in any other way. The peat briquettes are produced in presses of the open-tube type, similar to those hereinafter described, the pressure required being about 11 tons per square inch, a very solid block with smooth, polished surface being the result. Cut peat air-dried down to 30 or 40 per cent. water is first pulverized, then artificially dried in a pan-drying apparatus heated with live or exhaust steam until not more than 12 per cent. moisture remains. The briquettes are oval in cross-section, instead of circular like those made in Ontario. Four plants only are known to be making peat briquettes in Europe at the present time, namely, two in Germany, one in Russia, and one in Holland at Helenaveen. At the last named place the cost of production is from $2.00 to $2.15 a ton.

Peat Fuel Making in Ontario.

For several years the peat fuel industry of Ontario has been gradually developing, and the point has now been reached at which the makers can turn out their product at a profit. The burden of experiment and investigation, always an onerous one in establishing a new industry, has been borne by a few, and no doubt much money has been spent on methods and machinery which in the end gave only negative results. But there were those who did not despair of ultimate success, and with dogged resolution determined to persevere until the goal was reached. Among the most persistent of the inventors and experimenters have been Mr. A. A Dickson, formerly of Montreal, but now of Toronto, who has spent a lifetime in intelligent efforts to solve the problem of peat manufacture; Mr. Alexander Dobson, of Beaverton, whose mechanical skill and ingenuity have been of signal assistance; Mr. J. M. Shuttleworth of Brantford, and Mr. E. J. Checkley, of Toronto, all of whom are deserving of praise for their sustained and well-directed attempts to put the industry on a practical and paying basis. The Canadian Peat Fuel Company, the Peat Development Syndicate,—now Peat Industries, Limited—and the Peat Machinery Supply Company are the organizations through which the above-named gentlemen and others associated with them have carried on their labors. It would perhaps be too much to assert that all the difficulties have been surmounted, and that the success of the industry is an assured and established fact; but at any rate, the preliminary stage appears to have been passed, and there can be little doubt that what yet remains to be done will soon yield to the address and skill of those who have already done so much. There have been many problems of manufacture which defied for years the wit and inventiveness of man, but few indeed in the long run have failed to yield to bold experiment and patient investigation. We may be certain that the difficulties surrounding the production of a cheap and efficient fuel from peat will in like manner disappear; indeed, some of them have already vanished, and the question seems to be rather how to produce the best possible fuel at the least possible cost, than how to produce a good fuel at a fairly low cost.

The peat fuel question presents itself in somewhat different shape to the people of Ontario than to inhabitants of European countries. Here we have for long been able to obtain hard coal, or anthracite—the best domestic fuel in the world—at comparatively low cost, and this has made us fastidious in the matter of fuel. Anthracite is unknown in Europe, and the consequence is, that forms of peat or other fuel perfectly acceptable to Europeans, would not be regarded with favor here. The assumption however that we can continue to rely upon anthracite has been suddenly and rudely dispelled, and the possibility of obtaining an

efficient substitute has all at once become a matter of vital importance. What has happened once may happen again; and—to put an extreme supposition—if trade with the United States were to be interrupted by war, or if for any reason the government of that country should in times of strike or scarcity of coal forbid the export of anthracite, the need for some other kind of fuel would be instantly and most severely felt. Coal there is in Nova Scotia and British Columbia, but freights are prohibitive from either place, and to raise the price of fuel inordinately is only another way of cutting off the supply to very many. The fact however remains, that peat must compete with anthracite under ordinary conditions; and this has been kept steadily in mind throughout the present report.

Visits have been paid to most if not all the peat fuel plants so far erected in this Province, and mention is made of them below, together with the bogs on which they are situated; but detailed account is given only of methods and processes themselves, and in the main only thosplants and distinctive features have been selected for description which have actually proved or give good promise of proving successful. Complete data as to costs and efficiency could not in all cases be obtained, because of the intermittent working of many of the new plants, but where details of working costs are given they have been deduced from tests or observations actually made, and are believed to be correct within narrow limits.

PROGRESS OF THE INDUSTRY.

Little attempt was made in this country until comparatively recent years to utilize peat for fuel purposes. Emigrants from Scotland, Ireland or Germany occasionally cut and saved peat from neighboring bogs, as they or their fathers were accustomed to do in the land of their birth, and small quantities of peat fuel were even manufactured, as by Hodges by the machine process (described by Sterry Hunt in the Geology of Canada, 1866), and Aikman, who in one operation compressed and carbonized his fuel, about 25 years ago. Fuel made by the Hodges and Aikman processes was tested in railway locomotives and under steam boilers, with results more or less satisfactory. Though there was little immediate result of these efforts, inventors and experimenters continued to work at the problem. Briquetting presses of various designs were constructed until what appeared to be a satisfactory machine was evolved, when a number were built and sold to intending peat fuel makers. The process of preparing the peat was simply to dig up the blocks from the bog, let them dry in the air, and after comminuting the material in suitable machines compress it into briquettes. The result of the first season's operations was to show: (1) that peat could not be successfully and constantly dried down in the field to below 30 per cent. moisture; and (2) that in this condition it cannot be compressed into dense, solid briquettes. The consequence was that the peat factories ceased their operations.

The old belief that the application of artificial heat to the drying of peat was too expensive to be profitably employed had now to be proven unfounded if progress were to be made. Probably the cost of artificially expelling all the water contained in the saturated peat would be prohibitive, but some combination of air-drying in the field and artificial heat might be successfully used. Drying machines of varying principle and design were invented or adapted, but all proved unsatisfactory until the type now in use, consisting essentially of one or more encased and revolving cylinders, was employed. These have done the work more or less satisfactorily from the beginning; and it may here be conclusively stated, that with the many improvements which have been made on the original, this type of drying machine has, in conjunction with a preliminary use of wind and sunshine, solved the problem of getting rid of the water at a reasonable cost.

The real problem of peat fuel manufacture lies in removing the water; this solved, the other processes do not present insuperable difficulties. The peculiar power which peat possesses of absorbing and retaining moisture arises out of the unique character of the peat itself. In the growing bog raw peat contains from 85 to 90 per cent. of water, so intimately

associated with the plant fibres that drainage will not reduce the water contents to less than about 85 per cent., while with 60 per cent. the peat feels and looks merely damp, and at 30 per cent. it is to all appearances dry. The application of heat is necessary to transform the water into vapor, and the process of evaporation is furthered by a preliminary breaking down and disintegration of the tough cell walls of the peat fibres. How the problem of ridding peat of the water has been attacked and solved is narrated below.

Peat Bogs and Plants in Ontario.

What Ontario lacks in coal beds is made up by her wealth of peat bogs, which in extent and wideness of distribution are probably not exceeded by those of any other country of equal area. Peat bogs of greater or lesser size are conveniently situated at almost any point, both in older and newer Ontario, and are so common as not to require any attempt to enumerate them. In the southern part of the Province, bogs, while numerous, are not usually of commanding area, though many are of sufficient size to be the basis of a large fuel factory; but north of the height of land, say 50 miles south of James Bay, peat muskeg covers the face of the earth for hundreds, perhaps thousands, of square miles and stretches northwards along the westerly shores of Hudson's Bay. These northern reserves of carbon will no doubt some day play an important part in the economy of the Province; but for a long time all the fuel which will be required may be manufactured from the bogs which, so to speak, lie at our doors.

The reason for the existence of so great an extent of bog land is found in the climate, which includes warm rainy seasons of several weeks' duration twice a year favorable for the growth of peat bogs, and a winter season of five or six months, during which the surface of the bog is frozen over and so preserved in *statu quo*. On the other hand there are no long-continued periods of drouth and heat to bring about the drying up and consequent termination of the bog.

Considerable variety exists in the composition of bogs, depending to some extent upon the nature of the rocks and soil of the surrounding country, but chiefly upon their method of origin. The greater number are composed of sphagnum moss in its many varieties, some of compact growths of other species of moss, and others of a mixture of aquatic plants with or without moss, or of the common marsh grasses. On all these kinds of bog, except the last mentioned, evergreen trees, such as spruce, cedar and pine, and occasionally hardwoods, grow but do not flourish, except on the edges and on the least submerged portions of the bogs

Analyses of Ontario Peats.

It is not every bog that will make good fuel. The choice of a good bog, high in carbon and low in ash, is the first essential of a successful peat factory, even more necessary than good shipping facilities and a well-adapted process of manufacture. The two latter may be provided if wanting, or improved if faulty, but the bog is a product of nature and must be accepted as it is. The following table shows the quality of several of the bogs on which peat fuel plants have been erected in Ontario:

Bog.	Water in original sample, per cent.	Calculated on 15 per cent. water content.		
		Volatile combustibles, per cent.	Fixed carbon, per cent.	Ash, per cent.
1. Welland:				
From top to 20 in. depth	82.20	59.27	21.66	4.07
From 20 in. to clay bottom at 42 in	87.48	56.78	21.05	7.17
2. Beaverton:				
From top to 7 in. depth	62.98	57.13	11.67	16 20
" 7 in. to 15 in. depth	83.31	67 58	10.39	7 03
" 15 in. to 26 in. depth	84.86	73.60	4.72	6 68
" 26 in. to 40 in. (bottom)	82.98	56 93	.40	27.67

ANALYSES OF ONTARIO PEATS.—*Continued.*

Bog.	Water in original sample, per cent.	Calculated on 15 per cent. water content.		
		Volatile combustibles, per cent.	Fixed carbon, per cent.	Ash, per cent.
3. Perth:				
Top 5 feet		54.72	19.85	10.43
" 4 "		57.81	18.92	8.27
4. Brunner:				
Top 3 feet		60.10	15.70	9.20
5. Brockville:				
Upper stratum, 3 feet		55 08	20.62	9 30
Part lower stratum, from 3 down to 5 feet		57.15	13.73	14.12
6. Rondeau:				
Lower stratum, beneath surface growth		58 56	23.29	3.15
" " " "		54.60	22.44	7.96
From stock pile		67.99	11.06	5.95
7. Newington:				
Sample No. 1	87.94	56.74	27.21	1.05
" " 2	86.66	54 42	28.61	1 97
" " 3	87.62	58.70	24.73	1.57
" " 4	90.12	58.15	25.30	1.55

THE WELLAND BOG.

The Welland bog is situated in the townships of Humberstone and Wainfleet, six miles north of the town of Welland and between the Welland canal and its feeder, and is owned by Peat Industries, Limited, of Brantford. It covers an estimated area of 4,000 acres, or between 6 and 7 square miles, and varies in depth from 3 to 7 feet, averaging probably 5 feet. It will furnish over 4,000,000 tons of finished fuel estimating 1,070 tons to the acre. Composed of sphagnum moss, it typifies the great majority of such areas in this country. The upper portion of the bog consists of fresh or growing moss. This in the course of propagation dies out at the roots with the appearance of new growths above, the result being a gradual accumulation of moss and plant remains. Proceeding downward, the brown light moss changes in color and density until at the bottom there is an almost black, very compact muck, super-saturated with the peaty waters. These lower layers are not decayed, but by chemical alteration and elimination of some of the volatile constituents the percentage of carbon has been increased, and the first step taken towards the formation of a future coal bed. Numerous large and small roots are found embedded in the peat from top to bottom, the only remains of a once flourishing forest of cedar, spruce, and other hard and soft woods. Now nothing but scattered shrubs and grasses are capable of subsisting on the surface of the bog. Very compact, clean, greenish clay forms the bottom, the usual underlying bed of shell marl being in this case absent. The lowest six inches of the bog contains too much clay and other incombustible material to be of value for fuel, a fine silt having impregnated it, doubtless through the unrestrained movement of the waters in the early days of the bog. The remainder of the bog overlying this stratum is low in ash, and is quite suitable for fuel. If the 6 inches at the bottom had been eliminated from the sample, there would have been an appreciable decrease in the amount of the ash shown in the lower portion of the bog (see analysis in foregoing table).

Many years ago when the Welland canal and its feeder were under construction this bog formed an immense undrained swamp, so full of malaria that nobody lived within miles of it. The unfortunate laborers died in scores. Now all this is changed By means of the artificial waterway and the county and township ditches, both swamp and surrounding country have been reclaimed for habitation, and the locality is as healthful as any.

The Welland bog, described above, and the Beaverton bog, a description of which is given in the following paragraph, together with the factories respectively belonging to them, are

classic scenes in Ontario peat fuel manufacturing. Scores of experiments in drying and briquetting processes, the two most troublesome of the inside operations, have been conducted at these places, tests of machinery and presses having been carried on at Welland for nearly twelve years, and at Beaverton for about half that time.

THE BEAVERTON BOG.

This bog covers an area of about 100 acres in the township of Thorah, Ontario county, adjoining the village of Beaverton, and is owned by Mr. Alexander Dobson of that place. It is composed of the dead and blackened remains of rushes, grasses, weeds and other aquatic growths, with practically no moss except a stratum of a few inches in width at the bottom. In depth it measures about 40 inches, but of this only the upper 26 inches is fit for manufacture into briquettes, the lower 14 inches resting on the sand and marl bottom containing, as the analysis shows, too high a percentage of incombustible material to be of value for saleable fuel. It is consequently left for subsequent removal to be consumed in the works. The analysis figures of this bog show that in peat beds the percentage of fixed carbon does not always increase with the depth. The advisability is also shown, in order that a product of uniform quality may be obtained, of excavating the peat from top to bottom at one time; or if this is not possible, of mixing that from various levels. In this way a thin bed containing too much ash may be utilized, provided the other strata are of good quality. This is illustrated in Mr. Dobson's practice on the Beaverton bog. The uppermost layer of peat 7 inches thick contains over 16 per cent. of ash, which is certainly high; yet after being mixed with 8 inches containing 7.03 per cent. and 11 inches containing 6.68 per cent. respectively, a good fuel is produced, showing less than 10 per cent. of ash. This bog, though not of large extent, admits of easy drainage, and is remarkably free from buried stumps, roots or timber of any kind. It has therefore formed an admirable arena for the evolution and testing of mechanical methods of performing the necessary field operations, in the devising and application of which no less than in the invention of apparatus for the drying and briquetting of peat, Mr. Dobson has shown much ingenuity.

THE PERTH BOG.

The Perth bog, or No. 3 in the foregoing table, lies in the township of Drummond, about a mile and a half north of the town of Perth and half a mile from the Canadian Pacific railway. It is known locally as the "blueberry marsh," and is roughly estimated to cover an area of 2,000 acres, of which the Lanark County Peat Fuel Company of Perth owns a small portion, comprising some 35 acres. This was formerly ploughed and cultivated for grass, so that from the surface down all is now rich, black, crumbly peat. It bears a dense growth of willow bushes, while on the next lot and in the middle of the bog, a small forest of stately hardwood trees flourishes. This seemed so remarkable that a number of soundings were made of the ground on which the trees stood, the result being to prove that they were actually growing on peat of considerable thickness. The average depth of the bog is between 8 and 10 feet. The peat is composed of the remains of grasses, both fine and coarse, large-stemmed weeds and aquatic plants, well preserved, but with an almost entire absence of moss. Fallen logs and roots are plentiful, but do not interfere with excavating operations, except when near the surface, as when deeply buried they are so completely waterlogged that the spade cuts through them nearly as easily as through the peat itself. But exposed to the air, the timber in a short time turns tough and very hard.

The company has partly ditched the bog, and installed a plant for making peat fuel, including a dryer and a briquetting press of the Dickson or open-tube type, but for various reasons little practical success has attended its operations.

THE BRUNNER BOG.

The Brunner bog lies in the township of Ellice in the county of Perth, and is traversed by the line of the Grand Trunk railway. It covers an area of about 2,000 acres of which 1,300 acres are held under lease by the Stratford Peat Company, Limited, the peat plant erected in the middle of the bog beside the G. T. R. tracks being about 2 miles south of Brunner station, or 9 miles north of Stratford The bog is of the true moss variety, but differs from most bogs of the kind in that the moss is of the genus hypnum. Marked variations in quality characterize the bed, the upper foot or so yielding a brown to black, fairly compact muck higher in carbon than the beds below. Next comes an 8-inch stratum of bluish-black dense peat devoid of vegetable fibre, but containing charred fragments of surface shrubs—evidences of fire in by-gone times. From here to a depth of 3 feet from the surface more brown peat occurs, which is then succeeded by a dark bronze-colored mass with fibre almost as distinct and fresh, except for the hue, as when living, and not much more compact. This material is said to extend to the bottom of the bog, the total depth of which is 6 to 10 feet. Probably only the upper 3 feet will prove of value for fuel purposes. Many stumps are embedded in the bog, while over the surface a forest of upturned pine stumps is scattered, the labor of clearing the ground of which will be in part compensated by their value as fuel. Willows have densely over-grown several extensive areas of the bog, and over all of the remaining surface tall weeds flourish.

The company put in a plant for making peat fuel, the drying machine being a modification of the Simpson apparatus, and the press a Dickson one, which appeared to work satisfactorily, making briquettes 2 inches or 2½ inches in diameter as desired. Owing to the large number of stumps and roots on the ground, harrowing is the method employed for harvesting the peat. A quantity of fuel was produced, but a fire in the works about the end of 1902 interrupted the operations. These have since been resumed, and some alterations made in the apparatus, including the substitution of a Dobson press for the open-tube one formerly employed. Shipping facilities are unusually good, a switch from the Grand Trunk railway running into the plant, and cars can be loaded by conveyors leading directly from the press.

An interesting fact was noted in connection with the operations here. Air-dried peat cut and stacked on the bog several years ago was drawn in last summer (1902) in as dry a state, except for the outside of the piles, as when first gathered. The unusually heavy and prolonged rains of 1902, which hampered peat-making everywhere in Ontario, had penetrated the heaps only for about 30 inches, and where the covering was of fine or broken peat, only the outside 6 inches was wetted. It will be an important economy if it is found that the supply of air-dried peat for winter manufacture can be stored without having to provide sheds or other covering for it.

THE BROCKVILLE BOG.

Bog No. 5 in the list lies two miles north of Brockville, in the township of Elizabethtown, Leeds county, and is reached by a branch of the Grand Trunk railway, which skirts its north-easterly edge. It covers some 1400 acres in rectangular area, and occupies a basin with clay and gravel bottom. Soundings taken from the edge toward the centre increase in depth to 40 feet and probably upwards. The upper 3 feet is composed of the remains of grasses, grass roots and slender aquatic plants, and but little moss could be detected. Scattered patches of moss of the genus sphagnum occur, however, apparently increasing toward the central portion of the bog which is still submerged. The upper stratum of 3 feet is of uniform quality throughout, and of high fuel value. At this depth a sharp change takes place both in the character and quality of the peat. A dark brown plastic bed or stratum comes in here which is said to extend to the bottom of the bog. It is dense and finely stratified, and except for occasional minute fragments of plant roots, vegetable fibre is entirely absent, the whole presenting a uniform, smooth surface when torn or cut. On thin edges it is translucent. When dried the color changes from brown to black, but at a distance has a grayish cast, from

the minute particles of incombustible material disseminated throughout the mass, some of which are quartz grains. The texture of a specimen while being dried passes into a rubber-like consistency, and finally becomes quite hard and brittle, splitting along the lines of lamination and curling up at the edges As the analysis in the foregoing table shows, this lower bed is much inferior to the upper one for fuel purposes, being higher in ash and lower in carbon. The surface of the bog is heavily covered with grass and shrubs, and stumps of evergreen trees, such as spruce, tamarack and cedar, the remains of a dense forest some time ago cut down.

Considerable ditching was done by a local company and peat works erected, the plant consisting of two 60-h. p. boilers, a horizontal engine, two Dickson briquetting presses, and a Dickson dryer. This dryer followed original designs, but unfortunately proved unsuccessful. It differed entirely both in principle and construction from the dryers now in use. Since these short first trials the works have remained idle, and the property has been transferred to the Peat Industries, Limited, Brantford.

THE RONDEAU BOG.

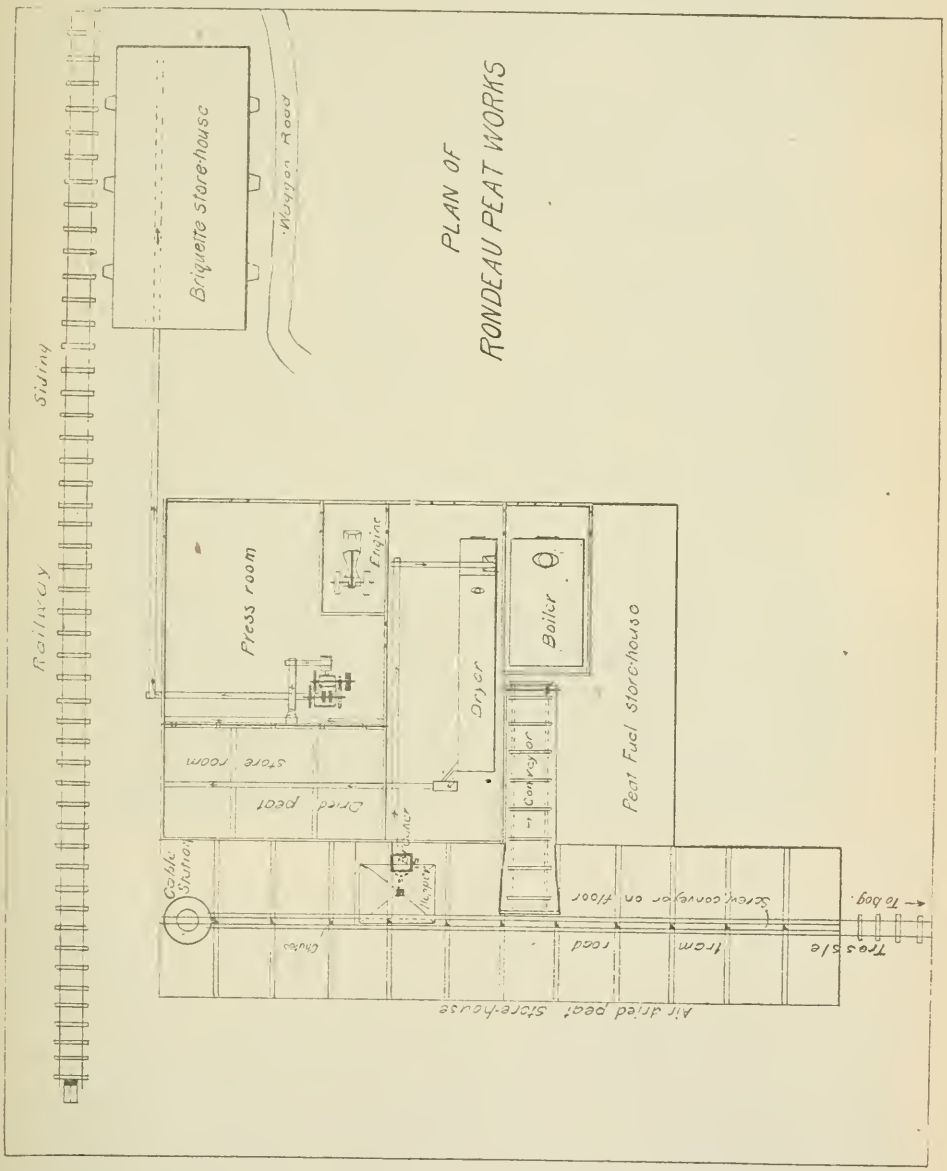
The Rondeau bog, or No. 6 in the list, borders on Rondeau harbor, a lake-like bay on the shore of lake Erie, in the county of Kent. It extends along the water-front a distance of several miles and has a width of one-quarter to one-half a mile. Wide but low sand bars separate the bog from the waters of the harbor. It occupies an area of about 1500 acres in the township of Harwich. The Western Peat Fuel Company, Limited, of Chatham, own 328 acres of the bog, on which they have erected a peat factory and installed the necessary machinery. The depth of the peat is markedly variable, ranging from 1 foot to 30 feet within short distances, leading to the belief that a series of sandbars underlies the bog similar to that which now divides it from the lake, in the quiet waters behind which grew and accumulated the plants whose decay resulted in the present bog. The upper stratum consists of a light brown, intricately interlacing mass of minute plant roots, quite different in texture from the peat of a moss bog. Lower down the color deepens, and a coarser flora appears ; no doubt the remains of a growth entirely aquatic and submerged. The upper portion is not sufficiently dense for compression into good briquettes, but farther down the peat is fairly dense and good. The first two analyses in the above table were furnished by the secretary of the company.

A railway filling guards one side of the bog, a farmer's dike another and the company's dikes the remainder, but all proved ineffectual to exclude the waters of lake Erie when their level rose in 1902. Just when the company had everything ready to begin operations the bog was flooded and work had to be suspended. A pumping station was built on the bog earlier in the operations to keep down the water, and this will be used to unwater the bog again as soon as the outside lake lowers to normal level. A ditch 2000 feet long, 3 feet deep, and 30 feet wide has been dug, which will, by forming a drainage channel, assist in keeping the bog dry. There is a complete absence of roots or trees of any kind, and consequently mechanical methods of removing the peat may be conveniently employed.

RONDEAU PEAT WORKS.

The works erected by the company on a rise of clay, which comes nearly to the surface towards the interior of the bog, show much judgment in design and arrangement, as will be seen from the illustration, and may be here briefly described. One main brick building 60 by 60 feet in plan with steel trussed roof of sheet iron and cement floors has been divided by brick walls into dryer room, press room, engine room, and storage bins for the dried peat, and is entirely fire proof. The boiler room, also of brick, is annexed and is contained in the shed where the peat for fuel purposes is stored. At the side of these is built a storehouse for air-dried peat 120 feet long, 28 feet wide, and 20 feet high to the eaves or tram track. A short distance away is another building in which 200 tons of peat briquettes can be stored, and from which fuel can be loaded in the farmers' wagons on one side and into railway cars on the other

The process of manufacture includes methods and machines of both Welland and Beaverton designs. An endless cable hauls the air-dried peat into the storing sheds in cars carrying V-shaped balanced side-dumping boxes; from the shed it is elevated into a large hopper over the breaker, which is of somewhat different construction from the other machines for the same purpose described in this report. The fingers on the periphery of the revolving cylinder work



between corresponding fingers projecting from the interior circumference of the casing, the two systems interlocking as closely as possible. The drum makes 800 revolutions per minute, and the effect is to disintegrate the peat into a light pulpy mass most suitable for drying, and yet with fibres sufficiently intact to compress into a very coherent briquette. The machine appears to be well adapted to tear apart the mass of interwoven, tough and yet minute fibres of this class of peat without shattering the plant cells, which in this case are of fairly compact

structure and not merely water receptacles, and the consumption of power is moderate. The dryer is an improved Simpson, and the briquetting-press is of the Dobson type, manufactured by the Peat Machinery Supply Company of Beaverton.

All elevators and conveyors are tightly boxed, and each part of the works is partitioned off from the rest so that dust-raising is not only minimized, but confined to its source. The fire-doors of boiler and dryer being side by side with but a brick wall between, one man is able to keep the fires going in both, and one engineer will attend to both engine and press. Another man will distribute and dump the in-coming cars of air-dried peat, and this man, the fireman, the engineer and the foreman constitute the entire inside working force. The output is expected to be 15 tons fuel per ten hours, or 30 tons working day and night shifts.

The cost of erecting these works, together with other charges for bringing the whole to completion, have been furnished by Mr. J. L. Scott, manager and secretary-treasurer of the company.

Buildings	$ 6,872.17
Plant, except briquetting press	8,820.59
Briquetting press	2,000.00
Tramway	943.19
Expense account	2,864.17
Bog	3 671.60
Railway spur	533.74
Charter for company	400.00
Total	$27,986.15

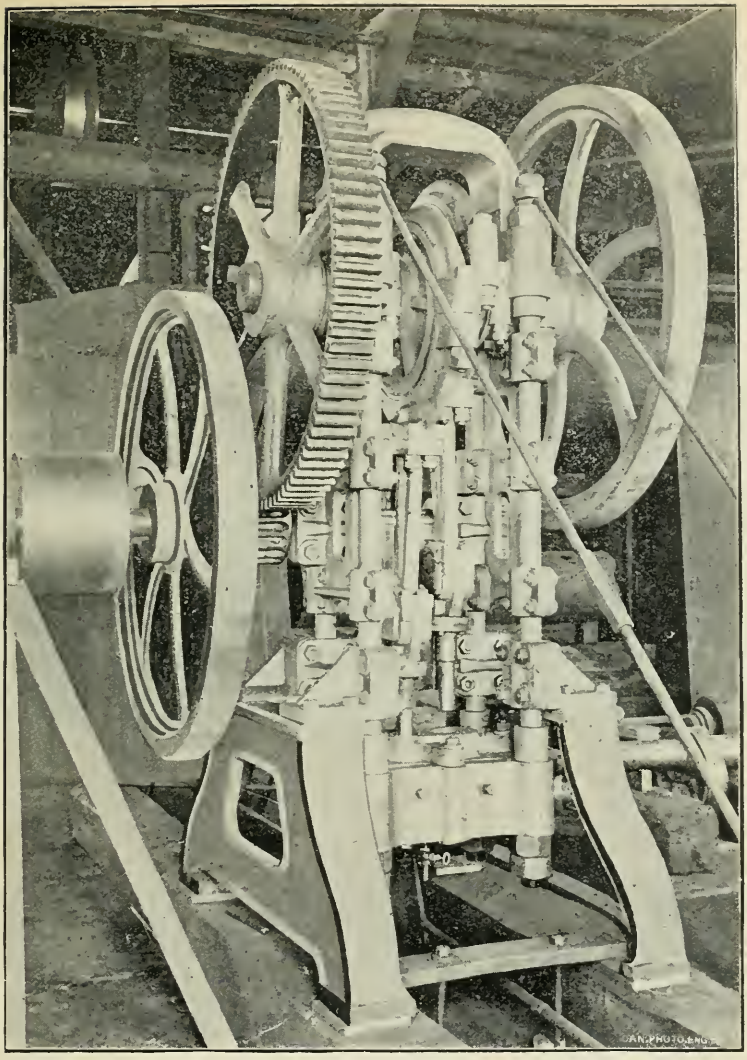
THE NEWINGTON BOG.

The Newington bog, No. 7 in the above table, is a large muskeg 20 miles northeast of Cornwall, or 2 miles south of the village of Newington on the New York and Ottawa railway. It covers an area of about 1,200 acres in the township of Osnabruck in the county of Stormont. Dominion Peat Products, Limited, of Brantford, have purchased 1,000 acres of this bog and are erecting a peat fuel plant, a description of which is given below.

Several varieties of sphagnum moss combine to form the body of the deposit, the uppermost 2 feet of which is alive showing various shades of light yellow, green and red. This stratum is valueless for fuel, but would make excellent moss litter. A sturdy forest of spruce flourishes on the edges of the bog, but quickly dwarfs and thins out towards the interior. The central areas are composed of small lakes and ponds—deep, soft masses of impenetrable ooze. The average depth of a section a mile wide was found by soundings to be about 25 feet, ranging from 20 feet at the sides to 27 feet in the centre. The analyses given in the above table were furnished by the company, and show the peat to be of unusually fine quality, being rich in carbon and poor in ash. It should make the best of fuel.

The Process of Making Peat Fuel.

The three divisions in which may be grouped the various operations comprised in making peat fuel by what we may call the Canadian process, are (1) Excavating, (2) Drying, (3) Compressing. Various methods are adopted of carrying on all these operations, according to the nature of the bog and other controlling circumstances; but it cannot be too strongly stated that the crux of the manufacture lies in drying the raw material. The difficulty consists, not merely in getting rid of the water, but in getting rid of it at reasonable cost. It is at this point that numberless promising processes have broken down, and it is this essential feature of manufacture that requires unceasing vigilance on the part of the peat-maker if his product



Dickson's peat briquetting press.

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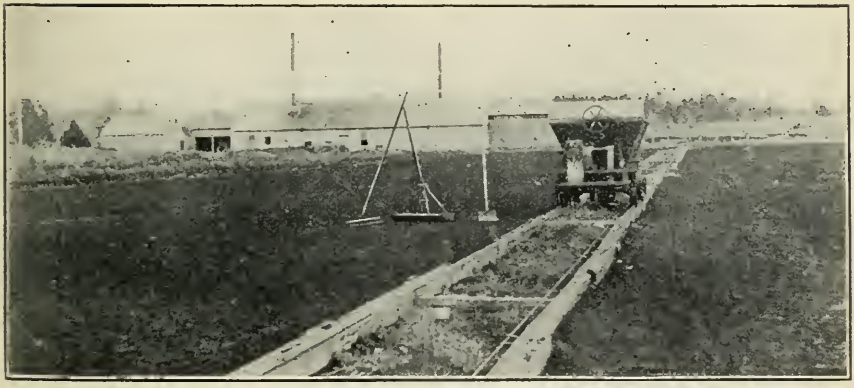


Beaverton peat bog and works.

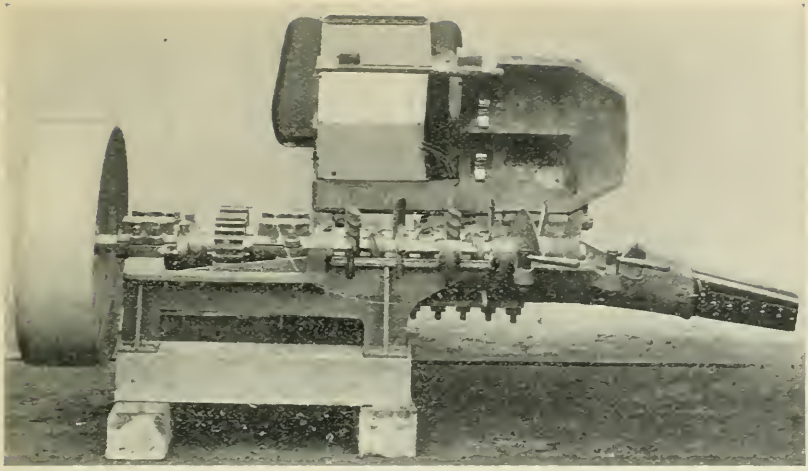
Perth peat bog.

Perth peat works.

Newington peat bog; near margin.

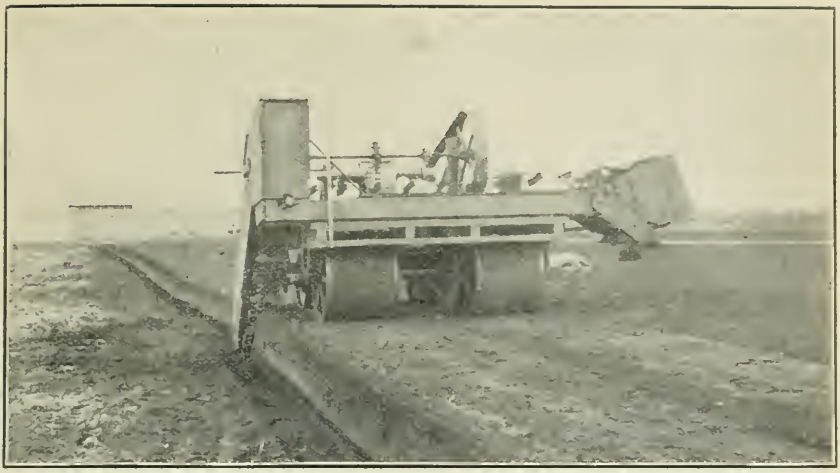
Newington peat bog: central area.

Beaverton bog: scraping and raking peat.

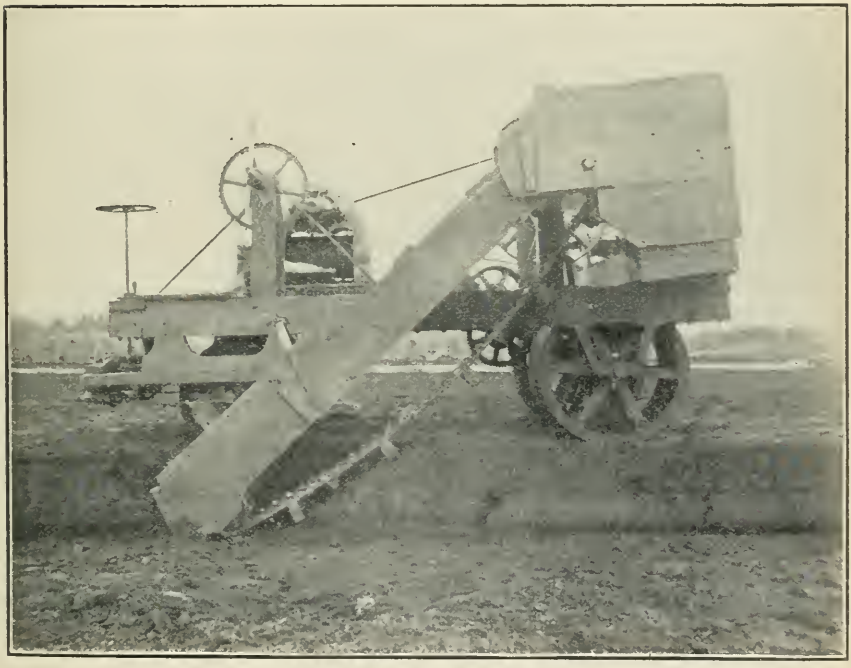


Anrep's peat-milling machine, opened to show construction.

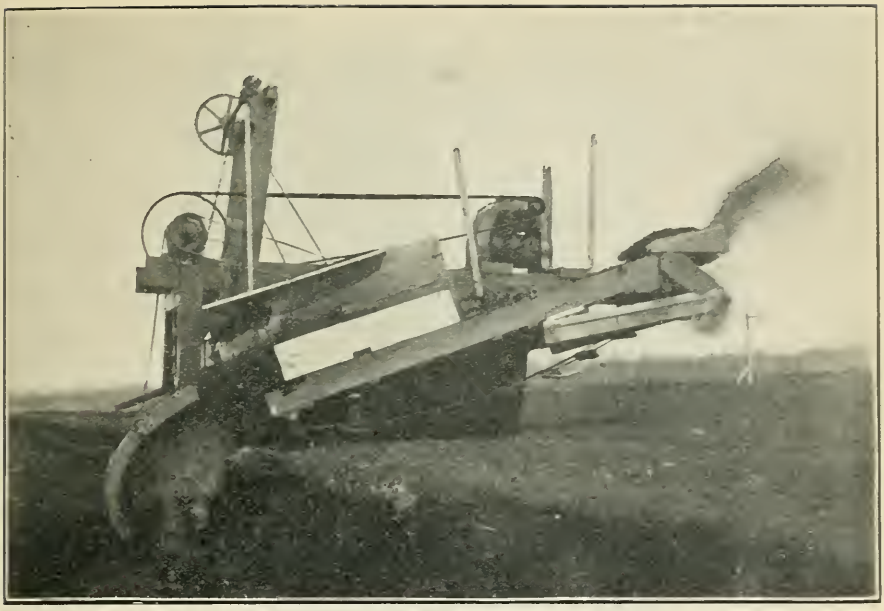
Anrep's peat-milling machine at work.



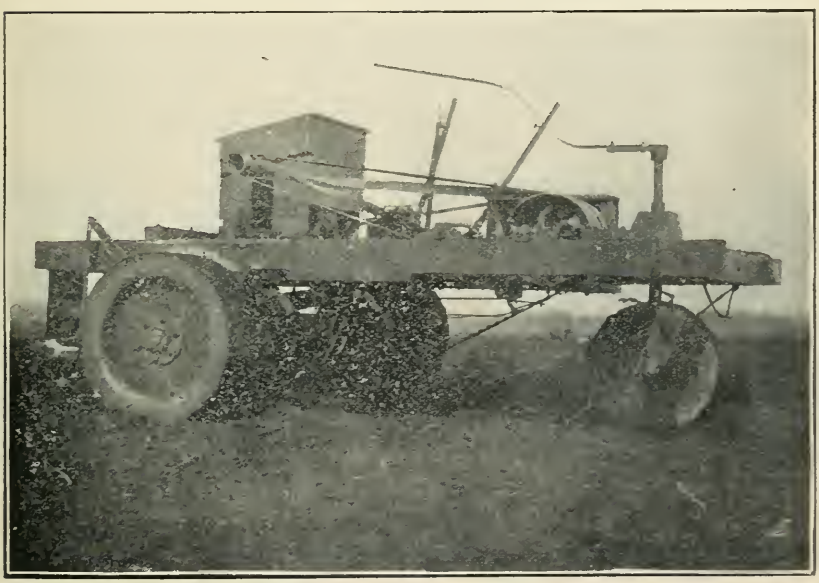
Dobson's peat excavator; front view.



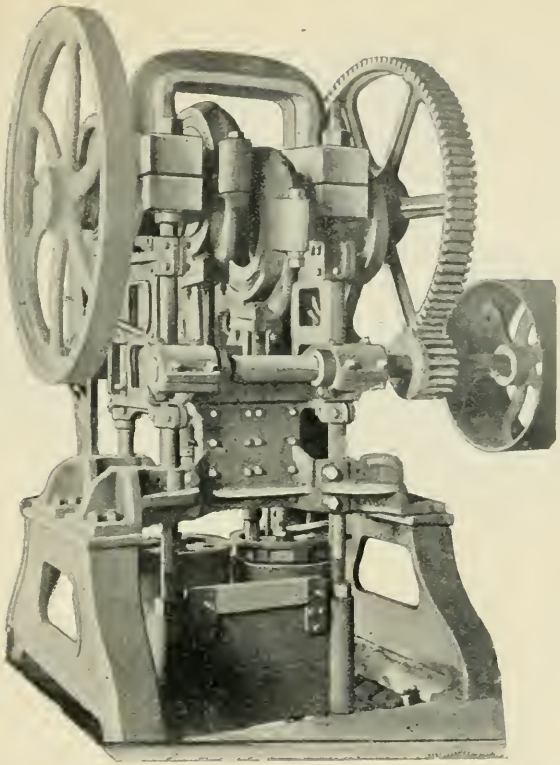
Dobson's peat excavator; side view.



Dobson's improved peat excavator.



Dobson's peat gatherer.



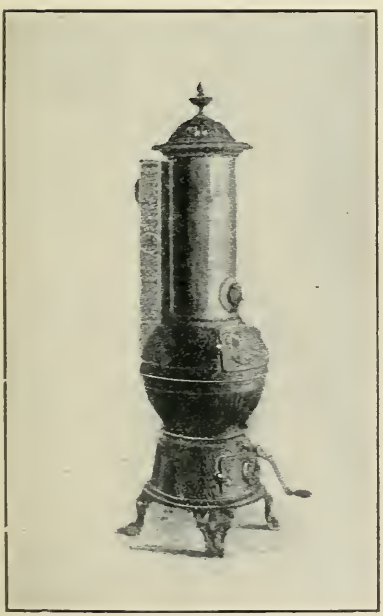
Dobson's peat briquetting press.

Dobson peat briquettes

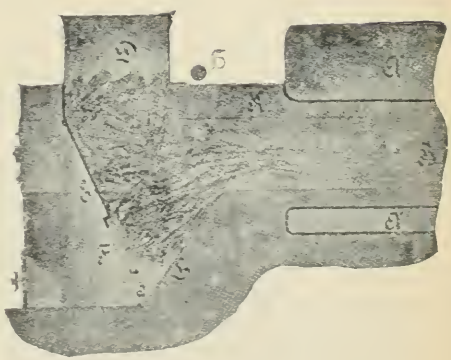
Fresh from press

After transportation by railway.

Peat briquettes made by Dickson process.



Lange, Jenson & Coy's peat stove.



Fire-box for burning peat under steam boilers.

is to be satisfactory. In describing the manufacture of peat fuel, it has been thought that a a more intelligible account would be given if the several steps were taken up in order and the various methods of accomplishing them dealt with, than if a detailed description were attempted of a number of peat factories, in which different means of doing the same work are employed. In this way the disadvantage of unnecessary repetition will be avoided, and emphasis laid on the process rather than on the plant. Wherever practicable, the cost of the several operations is given.

WET AND DRY BOGS.

Peat bogs are of two classes, wet and dry. In a permanently wet bog, the peat is submerged in water which does not admit of being drained away. The method of recovering peat from such a bog may be seen by the plan adopted near Kirkfield in Eldon township, Victoria county, three miles west of Victoria Road station, which was worked in 1900 and 1901 by the Trent Valley Peat Fuel Company, Limited, of Peterborough. The bog is situated on the route of the Trent Valley canal and covers about 10 square miles in one immense muskeg on both sides of the canal. The water lies flush with the surface of the mass, and the depth of the peat is from 4 to 50 feet. A dredge floating on the bog excavated the peat in trenches and then followed into the paths thus cut for itself with scows attending, each carrying a number of boxes of about 2 cubic yards capacity into which to load the peat. The scows were towed to the terminal of an aerial tramway, over which the boxes were conveyed to the works about 500 yards away, where the saturated peat was dumped into the hopper of a root extractor and disintegrating machine, from which it issued as a fragmentary muck with the fibres pretty well broken or fractured in preparation for the drying process which followed.

Another method of extracting peat from a wet bog, is the one proposed to be put in practice by Dominion Peat Products, Limited, of Brantford, on the bog near Newington, in the County of Stormont, above described, where a peat fuel plant is now in course of construction. A German machine, known as the Brosowski or Jasenitzer Peat Digger, will cut and lift out cubical blocks of peat 3 feet long by 1 foot wide and 1 foot deep, by means of a rectangular knife, which is driven or forced down into the peat. The same knives raise the mass and dump it into a conveyor, which transports it to the works. The digging continues in the same place to a depth of 25 feet, the limit of the machine, when it is moved sideways and begins on the next section of the bog. Hand power alone is used. This digger is said to be in successful operation in European countries.

DITCHING A DRY BOG.

For "dry" bogs, different methods are required. The word "dry," as applied to a peat bog, does not mean the absence of water, but rather that the bog is not submerged and is capable of being drained. The first thing to be done is to get rid of the surplus water, for which purpose drains or ditches must be dug. At the Welland bog, already spoken of, the following system has been adopted: Two or more parallel drainage ditches are run through the length of the bog, 660 feet apart and 10 feet wide. They are sunk through the peat, which is about 4½ feet deep, and to a depth of 2 feet or more into the clay underlying the bog, and conduct the water to the county ditch with which they connect. A series of cross ditches is now run at right angles to the first, intersecting them at intervals of 50 feet, until a plot or working area 660 feet square or 10 acres in extent has been ditched and drained. Cross ditches 100 feet apart would probably be as effective, and would certainly leave the surface of the bog less cut up and in better condition for subsequent operations. Two main ditches 660 feet long, 10 feet wide and 6 feet deep, and 13 cross ditches 3 feet wide by 5½ feet deep being dug for every 10-acre plot, it follows that 8,170 cubic yards of material is removed per 10 acres. The equivalent per acre is 817 cubic yards which at the contract price of 6 cents per yard, cost

$49 per acre for ditching. As one foot of the top of this bog is moss, valueless for fuel, and 6 inches at the bottom contains too much ash, but 3 feet remains for good fuel, with which thickness the bog it is estimated will yield 645 tons finished fuel per acre. The cost of ditching the Welland bog is therefore equal to $0.0759 per ton.

Physical conditions, to a large extent, govern the expense of ditching, and at the Beaverton bog the expense is considerably less. A few main drains 400 to 600 yards apart, and cross ditches 100 feet apart, are all that is necessary, involving 420 feet of ditching per acre. It was ascertained that a man at a wage of $1.40 per day can shovel 26 cubic yards of peat per day, so that, these ditches being 3 feet wide and 3 feet deep, 140 cubic yards per acre are removed at a cost of $7.53. An acre of this bog 2½ feet deep will yield 535 tons finished fuel, and the cost of ditching the bog per ton of fuel is therefore $0.0141.

At nearly all of the other bogs in the Province where peat fuel manufacture has been attempted, drainage has been necessary, the expense per acre varying with the depth and size of the drains.

CLEARING THE SURFACE.

After draining, the light, growing or undecomposed moss is removed, together with protruding stumps and roots of trees, and a level surface is prepared for the digging or excavating process, which comes next in order.

In some European countries the moss is manufactured into litter for bedding cattle and horses, for which its high powers of absorbing moisture render it peculiarly suitable. An attempt was made at the Welland bog some years ago to establish a moss litter industry, but though there was no difficulty in preparing a first-class article, the business languished and did not succeed, presumably through lack of demand.

On a 10-acre plot at Welland $25 was paid for extracting stumps and roots, and $50 for removing the covering of moss. For one acre, the cost therefore was $7.50, or $0.0116 per ton of finished fuel. The moss and roots are allowed to dry in the air and are subsequently used for fuel at the peat works. At Beaverton, the cost of clearing the bog is estimated at $0.0052 per ton of briquettes.

LAYING DOWN TRAMWAYS.

The bog being drained, levelled, and sufficiently consolidated to be worked, the laying of light tramways on which to haul the peat into the factory is the next preliminary. The tracks are sometimes laid along the ditches, as on the Welland bog, in order to bring the trucks on a level with the surface and so facilitate loading; but this is a temporary advantage only, for as the peat is removed the height of the bog decreases. It is more satisfactory to lay them on the surface, where they may be quickly shifted to any place or in any direction desired. The bottom of the ditch is too wet and soft for the tram horse, which is obliged to walk along the top, playing havoc with the crumbling sides of the trench.

At Welland a track runs down each of the 13 cross ditches in a 10-acre plot, involving the laying of 860 feet of track per acre. The track being constructed in short sections is easily and quickly handled, two men at $1.20 laying 300 feet per day. The cost of track-laying therefore amounts to $6.86 per acre or $0.0106 per ton of finished fuel.

At Beaverton a single tram line is constructed down the centre of each 100-foot section, leaving a 50-foot strip of bog on either side. About 400 feet of track per acre is required, the cost of laying which is $3.73, or $0.0070 per ton of finished fuel. The ordinary method of hauling the peat is by horse, but at Beaverton the motive power is electricity.

HARVESTING THE PEAT AT WELLAND.

Usually the first step in the actual harvesting or gathering of the peat is to run an ordinary farm harrow over the surface and expose a thin covering of peat to the action of the wind and sun. This is the plan perforce employed where stumps and roots are numerous, as on the Welland bog. In the main it answers very well, but one disadvantage it possesses is that successive strata in the bog being often of varying composition, differing in proportion of ash and in other ways, the peat product will not be of uniform quality. Provision may, however, easily be made for mixing these different strata by stacking them in large heaps, from which the supplies for manufacture will be drawn. By harrowing the ground twice on each occasion, a layer of peat from 1½ to 2 inches deep is exposed, the work being done by the tram horse and driver during spare intervals, and occupying about one-quarter of their time. Man and horse are paid at the rate of $1.75 per day. When dried down to a water content of about 45 per cent. the peat is scraped by hand over to the tram roads and loaded into the cars by 3 men, each of whom is paid $1.20 per day. At the factory or stock pile another man helps the driver unload the cars, which are not self-dumping. These men will in one day with fair drying weather harrow and scrape over an area of 48,700 square feet, or 1.118 acres. The average depth of air-dried peat removed at each scraping is about three-quarters of an inch, which gives an output of 3,044 cubic feet for the above area, or 2,722 cubic feet per acre. A cubic foot of peat in the air-dried condition, containing 45 per cent. water weighs on the average about 24 lb. Therefore 2,722 cubic feet weigh about 32 tons, equal to 21 tons finished fuel containing 15 per cent. water. The items of cost in connection with this part of the field operations when summed up are as follows :—

For one day.	
1 horse and driver	$1.75
3 scrapers and loaders, at $1.20	3.60
1 unloader	1.20
Total	$6.55

This sum representing the cost per day of harvesting 1.118 acres, the cost per day per acre is $5.858, or $0.279 per ton of finished fuel.

The cost of field operations at the Welland plant may now be tabulated as follows, per ton of finished fuel :

Ditching	$0.0759
Clearing	0.0116
Track-laying	0.0106
Harrowing, scraping and tramming in	0.2790
Total	$0.3771

THE DOBSON MECHANICAL EXCAVATOR.

The Beaverton method of excavation is entirely different. After the bog is drained and levelled, a mechanical and electrically driven digger is set at work, which travels slowly up and down one or both sides of the area under removal, the excavating device working in the side or wall of the ditch. A good idea of the excavator may be had from the accompanying illustrations. It consists of a platform 7 feet wide by 10 feet long, mounted on four wood-faced wheels, the front pair being the drivers and measuring 33 inches in diameter and 18 inches face, and the rear wheels being 22 inches in diameter and 18 inches face. The large superficial area of these wheels is necessitated by the softness of the bog surface. A 10-h.p. electric motor operates by belting and gear wheels all the machinery and at the same time propels the carriage forward at the desired speed. Overhanging the ditch on the right hand side is the combined

excavating and elevating mechanism which is free to swing in a vertical plane about the upper sprocket wheel shaft, and may be raised or lowered according to the depth of cut to be made, the maximum depth being 4 feet. It consists of an endless chain which travels down the outside and up the inside of the elevator box, and which is set alternately with a row of cutting teeth and a sharp-edged plate. It serves the double purpose of scraping off a thin slice of peat and elevating it to a conveyor running across the front of the carriage. At the opposite side the distributor, a partially hooded paddle wheel revolving at a high velocity, catches the stream of fragments and showers them over the surface of the bog to a distance of 30 to 50 feet, or as far as the tramway running down the centre of the section is which the excavator is working. Each such shower of peat forms a deposite about half an inch thick, consisting of finely divided fragments, which are in excellent condition to be dried by wind and sun. The machine travels at the rate of 3 to 3.5 feet per minute. The workable depth of the Beaverton bog being 2.2 to 2.5 feet, the quantity of peat handled by the excavator is 7.5 cubic feet per minute, or 4,500 cubic feet per day of 10 hours. A cubic foot of peat in the bog weighs 56 lb., consequently the machine raises 126 tons of wet peat per day, equivalent to 22 tons of finished peat containing 15 per cent. water. Heavily insulated transmission wires trail over the bog behind the carriage from a central point in the field and convey the electric current to the motor. One man at $1.40 per day attends the machine, which requires 8 horse power to operate it. As will be shown further on the energy consumed by the entire plant at Beaverton, when it is all working, is 40 horse power, the generation of which costs $4.28 per day. The excavator's share of the cost is one-fifth of this sum, or $0.856 per day. The entire expense of operating the machine per day is therefore :

Attendance	$1.400
Power	0.856
Total	$2.256

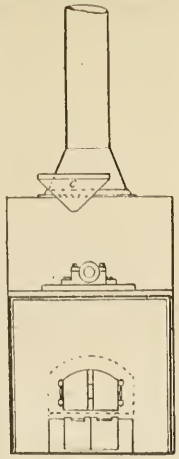
On the quantity of peat handled by the excavator per day, which is equivalent to 22 tons finished fuel, the cost per ton of briquettes is $0.1025.

It is not necessary that the first layer of peat should be dry before another is scattered upon it by the excavator, as experience has shown that successive layers up to six inches in depth may be deposited without hindering the drying process. Consequently, the work of excavating the peat may go on irrespective of the weather until, at any rate, six inches of peat cover the ground.

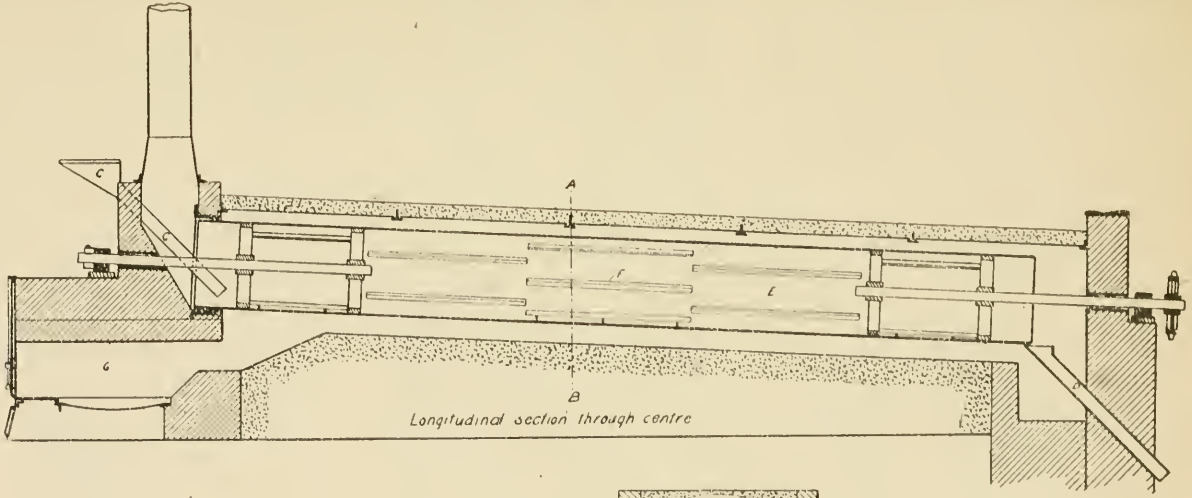
Scraping and raking the peat, in the Beaverton process, begin immediately upon the uppermost layer becoming sufficiently dry. Two men, each with a wooden scraper about four feet wide in the blade draw the layer of dried peat—from half an inch to an inch in depth—to the side of the tramway, and a third man following close behind drags after him a wide, long-toothed rake, thus loosening the next layer and putting it in condition to be dried. In favorable weather the whole process is a continuous one, consequently the cost of scraping and raking is the wages of three men at $1.40 per day, or $4.20 in all, equal to $0.1909 per ton of finished fuel, the basis being the output of the excavator per day.

AIR-DRYING THE PEAT.

The time required for drying the excavated peat depends of course upon the weather. The wind is a more efficient agent than the sun, a good breeze carrying off the moisture and so promoting evaporation. Under the best conditions, bright sun, high temperature and strong wind, a layer of distributed peat from 1 to 1½ inches deep will dry down from 85 per cent. to 45 per cent. moisture in about 2½ hours. This is approximately the period required by the men scraping and raking the peat to complete the tour of one of the areas 300 feet



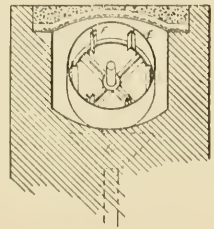
Front Elevation



Longitudinal section through centre

DOBSON'S DRYER

Scale. Feet 1 2 3 4 5 6



Section through A-B

C . feed hopper & chute.
D . discharge chute.
E . the revolving cylinder.
F . angle iron lifters.
G . fire box.
H . driving chain-sprocket wheel

long by 100 feet wide into which the bog is divided. Hence, in a day of 10 hours they can, under the most favorable conditions, harvest an area 1,200 feet long by 100 feet wide, or $2\frac{3}{4}$ acres.

Experiments show that while a layer of excavated peat lying on the surface of a bog is being evaporated down to the economic working point, or 15 per cent., a similar layer spread on a raised dry surface, say of wood, will evaporate down to 25 per cent., thus apparently proving that while the upper portion of the layer lying on the bog is losing moisture, the lower portion is drawing moisture by capillary action from the damp bog below. If it were feasible, it would apparently be an advantage to dry the peat on an elevated platform.

Loading the air-dried peat and tramming it into the factory complete the field operations as practised at Beaverton. An electric tram-car, holding the equivalent of one ton of finished peat, and fitted with bottom dump-gates, is worked by a 4-h. p. electric motor, taking power from the generator through a pair of trolleys running on wires beneath the car and beside the rails. One man loads and operates the car, the track leading to an elevated trestle at the works, where the load may be deposited on the stock pile in the bins, or in the disintegrator hopper, as may be required. Including loading, the round trip can be made in 20 to 25 minutes, so that the equivalent in air-dried peat of 27 tons briquettes can be gathered in daily. In practice, however, the quantity is limited by the capacity of the excavator, so that the tram-car man has employment for 8 hours only. The actual running period of the car, during which it is drawing upon the electric current, is about 4 hours per day. This is equal to using four-tenths of 4-h.p. ; or 1.6-h.p. for the entire day. The power used in drawing in the peat costs therefore $\frac{1.6}{40}$ of $4.28, or $0.1712 per day, or $\frac{0.1712}{22}$ = $0.0078 per ton of finished fuel. The attendant who loads and operates the car is paid $1.40 per day which is equal to $0.0636 per ton finished fuel ; therefore the cost at Beaverton of loading and bringing in the air-dried peat per ton of finished fuel is ;

Power	$0.0078
Labor	0.0636
Total	$0.0714

Summarizing the field operation costs at Beaverton, we have the following, per ton of finished fuel :

Ditching	$0.0141
Clearing	0.0052
Track laying	0.0070
Excavating and spreading	0.1025
Scraping and raking	0.1909
Loading and tramming in	0.0714
Total	$0.3911

DISINTEGRATING AND DRYING.

Following the progress of the peat at the Beaverton works we come to the processes of disintegration and drying. Conveyed from bin or stock pile, or deposited directly from the tram-car, the air-dried peat passes into the hopper of the "breaker" or disintegrating machine, where it is subjected to a fierce hail of blows in order to reduce the size of the fragments and destroy the minute plant cells of the peat fibres, thus permitting the remaining moisture to be more readily liberated in the dryer. The machine consists of a circular sheet iron box, encasing a horizontal shaft from which project radial cast iron arms about 1 foot in length. Through the ends of these and parallel to the shaft run iron rods each suspending a row of knob-like cast steel fingers 4 inches long and free to swing about the rods. The shaft makes 400 revolutions

per minute, and the steel fingers flying out radially dash the peat fragments against a semi-circular grizzly set close beneath. Through the 1 16-inch spaces of this grating the peat drops as a mixture of fine particles and dust, damp to the touch.

The breaker itself requires no special attendance, being looked after by the dryer attendant; but for the greater part of the time a man must be employed to shovel the air-dried peat into the conveyor leading from the storage bins or stock piles to the disintegrator, since, for a portion of the year only, can the peat be dumped directly into the hopper of the machine from the tram-car bringing it in from the bog. Estimating the time this man will be required at seven months in the year, that is 180 working days, his wages at $1.40 per day, or $252.00, must be distributed over the product for the year, say 3,800 tons. The power required for conveying the peat is small, and its cost is included in that given below for this section of the works as a whole. The approximate cost of conveying the peat to the disintegrator is therefore $252 ÷ 3800 = $0.0663 per ton of finished fuel.

THE DOBSON PEAT DRYER.

From the bottom of the breaker a conveyor carries the disintegrated peat to the hopper over the dryer, into the cylinder of which a regular feed is maintained. The Dobson dryer, along with the Dobson excavator and Dobson press, is a distinguishing feature of the Beaverton works. The principles it embodies are: Applying the greatest heat to the exterior of the upper end of the cylinder where the damp peat enters; causing the flames and hot gases to pass along and about the outside of the revolving cylinder, to the lower or rear end before entering, and then to pass back through the interior of the cylinder, traversing the showering peat; arranging an internal system of lifters so that this showering of the peat will be continuous and uniform from side to side of the interior of the cylinder; slightly pitching the cylinder so that as it revolves the peat will travel slowly towards the discharge end; and so adjusting the firing in accordance with the proportion of water present in the peat that a product uniform in moisture content will be the result.

The Dobson dryer is simple in construction and operation, and does good work at a moderate cost. A reference to the cut will show its plan of construction. Inside the rectangular brick casing is a cylinder 30 feet long by 3 feet diameter made of ⅜-inch sheet iron plates, and set with a pitch of 14 inches in its length. Shafting resting on bearings outside the brickwork extends 12 feet into each end of the cylinder, supporting the latter by cast iron arms. Sets of six 3 by 3-inch angle irons five feet long are equally spaced around the interior of the cylinder, each angle raised by pins 3 inches from the surface, and each set advancing on the preceding one through a small angle of revolution to break the ends. The fire-box is built at the front end as a separate structure. The spacing between the cylinder and brickwork allows of unobstructed circulation of flames and gases about the exterior from front to rear. The cylinder revolves by chain gear at the fixed speed of 1½ revolutions per minnte, at which rate a charge of peat will pass through it in 20 minutes.

The dryer was under observation for test purposes during part of a working day, samples of the peat before and after drying being taken for analysis, and the quantity of product and fuel consumed being also noted.

This test gave for a day of 10 hours: Weight of air-dried peat charged into dryer, 29,300 lb., containing 34.21 per cent. water; weight of peat discharged from dryer, 23,000 lb., containing 16.61 per cent water. The weight of water evaporated was 6,300 lb. Blocks of crude air-dried peat containing 34 per cent. water were used as fuel at the rate of 3,145 lb. per day. As is noted above under the head of ditching, one man at $1.40 per day will dig 26 cubic yards of bog, the equivalent of which in peat containing 34 per cent. water is 8,935 lb.; hence the labor cost of the 3,145 lb. peat used as fuel is $0.4431 per day, or $0.0385 per ton of finished fuel.

One man at $1.40 per day is employed in bringing in air-dried peat or other fuel to boiler and dryer; one-half of this sum is chargeable to the latter, amounting to $0.0608 per ton of output.

The quantity of power used by the disintegrator and dryer, with accompanying conveyors and elevators, together with an exhaust dust fan, was found to approximate closely to 15 horse power. The cost of this is $\frac{15}{40}$ of $4.28, or $1.605 per day, equivalent on the output of 11.5 tons to $0.1395 per ton of briquettes.

One man at $1.40 per day attends dryer and disintegrator, and this sum amounts to $0.1217 per ton of output.

The cost, therefore, of operating the dryer on the occasion of the test with an output of 11.5 tons per day was as follows, per ton of finished fuel:

Fuel, digging	$0.0385
" bringing in	0.0608
Power	0.1395
Attendance	0.1217
Total	$0 3605

These figures differ somewhat from those of the actual working cost, since at the time the test was made only one of the two punches in the press was in operation. The output of the press was therefore diminished by one-half, and the peat was allowed to remain longer in the field and dry down to 34 per cent. moisture, 10 per cent. less than the ordinary run of air-dried peat.

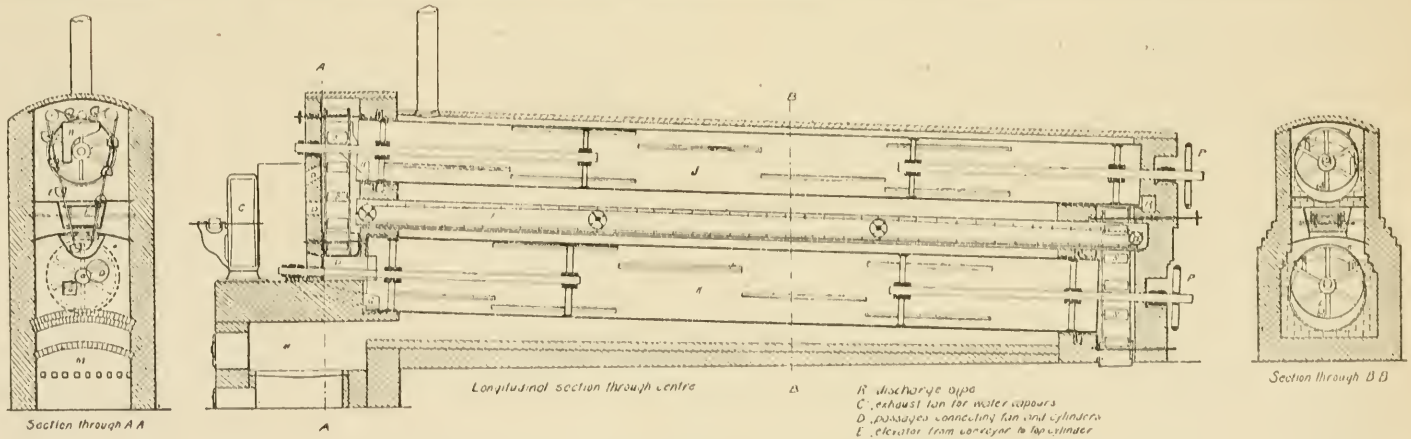
The dryer is said in actual operation to deliver 12.5 tons peat to the briquetting press from air-dried material containing 45 per cent. water. This means the evaporation of 13,600 lb. water per day, double the quantity given off during the test. The expulsion of this additional volume of water involves the use of more fuel, i.e., increases the charge for digging the crude peat for this purpose, but not that for bringing it in, as one man easily gathers a supply for the dryer in half a day. Doubling, then, the cost of this item and distributing it and the other charges over an output of 12.5 tons finished fuel per day, the following table of costs for operating the dryer is obtained, per ton of peat briquettes:

Fuel, digging	$0.0709
" bringing in	0.0506
Power	0.1284
Attendance	0.1120
Total	$0.3673

The crude peat fuel used under dryer and boiler is dug at the beginning of the season in sufficient quantity for a year's supply, and allowed to lie on the field for a season to dry. Necessary ditching operations may be taken advantage of to procure the fuel so reducing the cost. Analysis of the crude fuel taken from top to bottom of the bog gave:

	per cent.
Moisture	34.19
Volatile combustibles	45.28
Fixed carbon	13 42
Ash	7.11
Total	100.00

In the Welland peat works the air-dried peat is first screened, then put through the mechanical dryer, and then disintegrated or reduced. The main tram line from the bog approaches the works through long stock piles where the field product has accumulated. The present hand methods of unloading and moving the peat will no doubt be replaced by labor-saving appliances, such as elevated trestles, side-dumping cars, conveyors, etc., when the works are in continuous operation.



THE SIMPSON DRYER

Scale. Feet 1 2 3 4 5 6

The air-dried peat is emptied into the hopper of a slowly revolving screen or trommel, 4 feet long by 30 inches diameter, and set with a gentle pitch. The sticks and moss separated from the peat drop in front of the dryer fire-box in which, along with better material they are used as fuel. The peat particles are elevated at once to the feed hopper of the dryer.

THE SIMPSON PEAT DRYER.

The drying apparatus at Welland is known as the Simpson dryer, having been worked out and constructed by Mr. T. F. Simpson, late superintendent of the works, in conjunction with Mr. J. M. Shuttleworth, president of the company. It consists essentially of two parallel revolving cylinders, 30 feet long, one above the other, made of $\frac{3}{8}$-inch sheet iron. Inside the cylinders are iron cleats or lifters for more effectually stirring the peat as the cylinders revolve. The space between the upper and lower cylinder is occupied by a conveyor pan, forming a third compartment. The peat first passes through the lower cylinder, then through the intervening compartment, and finally through the upper cylinder, from which it is discharged into a chute leading to the breaker or disintegrator. The gases of combustion from the fire-box in front of the dryer never come into actual contact with the peat, passing first around and along the lower cylinder and second compartment, and thence into the chamber containing the upper cylinder, the peat being heated entirely by radiation. This, it is claimed, prevents the loss of volatile constituents through direct contact with the flames. On top of the fire-box is an exhaust fan which draws away the water vapors given off by the drying peat. The upper cylinder makes three revolutions per minute, and the lower nine, a charge of peat occupying 20 minutes in passing through the dryer from one end to the other. The mechanism is operated by sprocket wheels and chains.

Three tests were made of the efficiency of the Simpson dryer, one in the autumn of 1901 and the other two in May, 1902. In the first, 3,006 lb. of peat, containing 42.64 per cent. water, was reduced to 2,280 lb., containing 24.38 per cent. water, with a consumption of 128 lbs. wood (black ash) as fuel. Time, 2 hours 37 minutes; average temperature of dryer 300° Fahr. In the second, 2,116 lb. of peat, holding 46.38 per cent. water, was reduced to 1,451 lb., containing 17.90 per cent. water, in 3 hours 32 minutes; and in the third, 2,752 lb. peat, with a water content of 54.59 per cent., was dried down to 1,925 lb., containing 25.96 per cent. water, in 2 hours 20 minutes. A rather damp mixture of air-dried roots from the peat bog and screenings of sticks and moss from the air-dried peat was used as fuel in the second test, and in the third the roots alone.

These experiments failed to prove the Simpson dryer, in its then form, to be the efficient machine necessary to cope with the difficulties attendant upon this crucial process in peat manufacture. Better fuel may have given better results, and improvements in the construction of the apparatus may give it greater effectiveness, but it is evident from the figures given above that neither in rapidity of working, nor in reduction of moisture to the maximum permissible in peat briquettes, say 15 per cent., can the machine be said to meet the requirements of the situation. It may be added that an improved form of the Simpson Dryer has been made, which it is claimed will take peat carrying 50 per cent. water, and deliver it cold to the briquetting presses, with 10 to 15 per cent. moisture, and that the fuel consumed per ton of product will not exceed 200 lb. air-dried or stack peat.

There are two elements of cost in operating the dryer apart from power: (1) fuel, (2) labor. The fuel consists mainly of roots from the bog, whose cost has already been included under the head of clearing operations; the labor is that of one man at $1.20 per day. The proportionate quantities of power for the various operations were not determined, and this item is consequently charged to the product as a whole. Taking the results of the second test, the only one in which the moisture was reduced to a point approximating the normal moisture content of

peat briquettes, as a basis, the output of dried peat per 10 hours would be 14,510 lb., or 7.25 tons, the labor cost of which would be $0.165 per ton of briquettes.

After drying, the peat at the Welland works is passed through a disintegrator, the object being to promote further evaporation and cool the peat. At other works the peat is disintegrated before being put through the dryer, which would seem to be the natural and more effective method. The machine much resembles the one used at Beaverton already described, the chief difference being that the fingers attached to the cylinder are rigid instead of being loosely suspended. From the disintegrator the peat goes into storage bins, and another man at $1.20 per day is employed to shovel the peat out of the bins when the presses are in use. This labor represents $0.0686 per ton on a daily output of 17.5 tons briquettes.

DRYING BY PRESSURE NOT SUCCESSFUL.

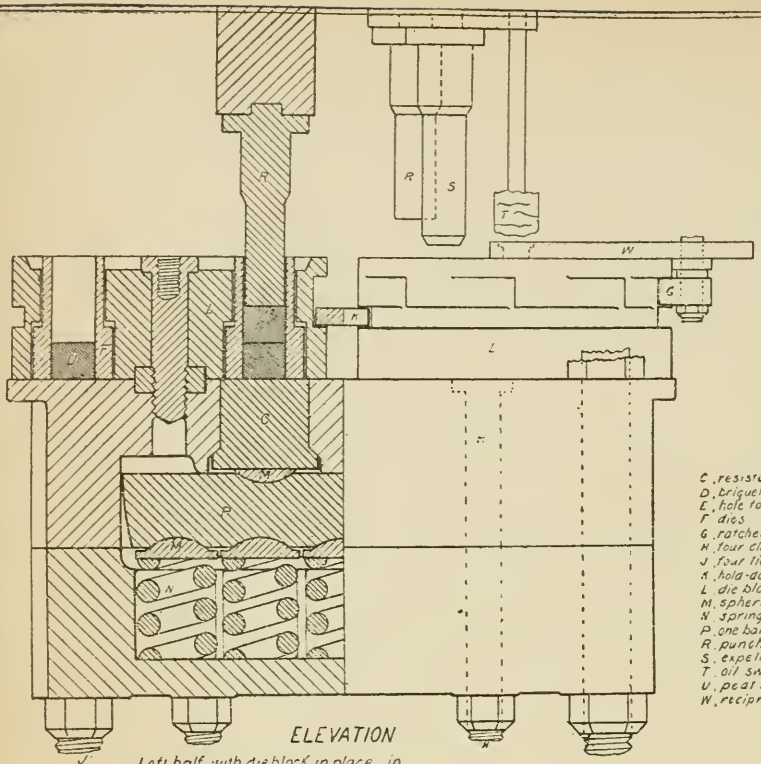
Countless attempts have been made to mechanically expel the water from crude peat by pressure, filtration or centrifugal force, all applied in a multitude of ways, but so far these attempts have invariably ended in failure. At the Trent Valley peat works hydraulic presses built for the purpose by Boomer and Boschert, of Syracuse, N.Y., capable, it is stated, of exerting a pressure of 300 tons, or 2 tons per square inch, were employed, the peat after passing through the macerating machine being loaded on trucks in layers between perforated trays overlaid with filter cloths, and in this manner subjected to pressure. Nineteen pressings were made in 10 hours, the output being 14.42 tons of partially dried peat per press. The following table summarizes the results so far as removing the water is concerned :

Sample Number.	Water content of peat.		Water displaced, per cent.
	Entering press, per cent.	Leaving press, per cent.	
1	78.19	58.89	19.30
2	79 35	63.16	16 19
3	77.24	64 49	12 75
4	76 92	64 29	12.63
5	75.48	61.52	13.96
6	78.17	65 56	12 61
7	78 28	65.27	13 01
8	79 40	63 24	16.16
9	79 41	66 58	12.83
10	77 99	64.63	13.36
11	74.42	60.70	13.72
Average	77.71	63 48	14.23

It will be seen therefore that an average of 63.48 per cent. water remained in the peat after pressing. This is almost too high for subsequent drying by artificial heat ; but criticizing the results from the other point of view, namely that of expense, 4 men and an engineer being required to tend the machine, it must be conceded that the cost was out of proportion to the comparatively small quantity of peat handled and the low extraction of water.

The last momentous experiments in this line were carried on for a period of several years at Dusseldorf, Germany, with a patent hydraulic filter press. Unlimited capital was available, and the expenditure amounted to about $100,000, every idea which appeared feasible receiving a thorough trial, so that if at all possible the aim of the process might be accomplished. But all in vain, for the attempt has recently been abandoned as impracticable. Mr. Thaulow thus reports on this point :

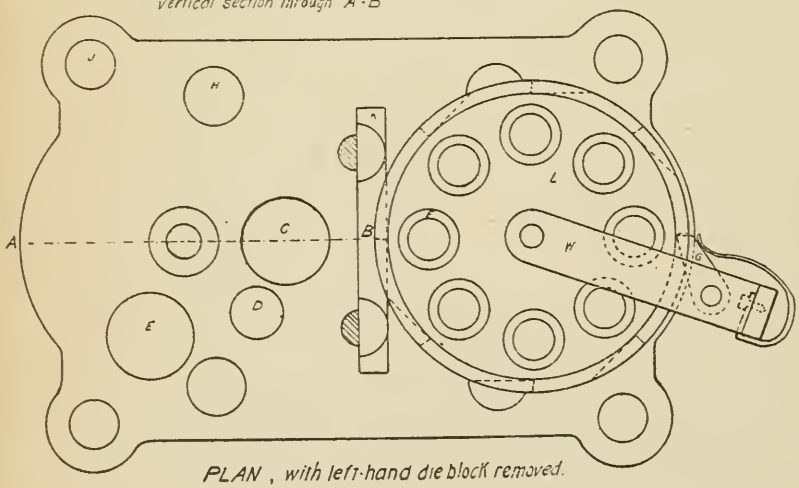
" It was contended that this press would bring the peat down to contain about 50 per cent. water, but it proved difficult to reduce the water even to 66 per cent ; and this required so long



C, resistance block
D, briquette discharge hole
E, hole for removal of dies; ordinarily plugged
F, dies
G, ratchet
H, four clamping bolts for the bed
J, four tie rods supporting the whole
K, hold-down bar for die blocks
L, die blocks
M, spherical buttons
N, springs
P, one bar between resistance block and springs
R, punch
S, expelling punch
T, oil swab
U, peat briquettes.
W, reciprocating lever

ELEVATION

Left half, with die block in place, in vertical section through A-B



PLAN, with left-hand die block removed.

DIE BLOCK AND BED DOBSON PRESS

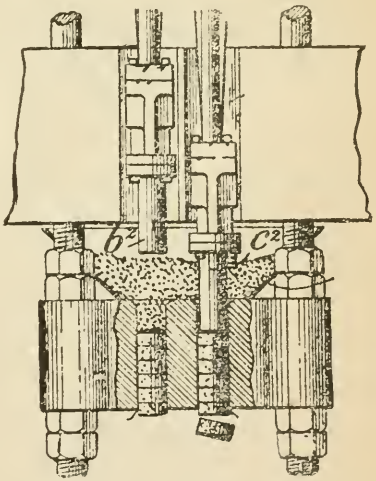
Scale, Inches 1 2 3 4 5 6 7 8 9 10

a time that for a greater production it would be necessary to employ several presses, which means a large expenditure of capital. The different parts of the machinery, intended to work partly automatically, get out of order easily. . . ."

At the Trent Valley works the slabs of peat after leaving the press were put through a disintegrator and then through a drying machine built by F. D. Cummer & Son, of Cleveland, Ohio. This is a well-known machine, containing a long rotary cylinder, many of which are in use for drying materials other than peat. Its evaporative power proved to be 6,000 lbs. of water per hour, and the output of dried peat 3 tons per hour, but the water content of the product was still too high for successful briquette-making. Eleven samples averaging 63.48 per cent. water before entering the dryer contained an average of 23.41 per cent. on leaving it. The temperature of the furnace was from 965° to 980° Fahr.

Making the Briquettes.

The final step in the Canadian method of peat fuel manufacture is compressing the dried and powdered peat into blocks or briquettes. The shape and size of these briquettes are not unimportant details, but should be such as to allow of free admission and circulation of the air required for combustion between the individual briquettes when thrown on the fire, and at the same time to allow each briquette to contain a sufficient reserve of fuel to afford fresh food for the fire as it eats its way into the block. It has been found that a cylindrical briquette say 2 inches long and about the same in diameter answers these requirements, and is also of convenient form for manufacturing.



Die-block of Dickson peat press.

The Dickson Press.

The original briquetting apparatus employed in Ontario was of the open-tube type, patented by Mr. A. A. Dickson, and known by his name. It was first set up at Welland about 12 years ago, and since then the many modifications and improvements made by the inventor from time to time have been tested there, including both the upright and horizontal forms of the press, water-jacketting, steam attachments to the tubes, etc. The principle of this press lies in the fact that if a tube of indefinite length be fed with any material, the resistance due to friction between the material and tube walls will gradually rise until no more can be forced in. Peat is of such a nature that when once caused to pack in the tube continued pressure on the material generates a rapid and great increase in the frictional resistance For a die or tube $2\frac{1}{2}$ inches in diameter, a length of about one foot will give a frictional resistance equal to a pressure of 8 tons per square inch on the punch. One difficulty in operating this style of press satisfactorily has proven to be the excessive consumption of power in simply moving the column of briquettes in the dies; in other words, in expelling the briquette from the die. The tube cannot well be of shorter length than sufficient to ensure a sound briquette being made from the poorest quality of peat; but with dense or gritty peats the resistance rises far beyond the required point. This in turn heats the die, causes an appreciable wear on the inner surface, and consumes unnecessary power. The end of this severe duty is usually a broken die or a ripped or cracked gear wheel. A water-jacketting device has been introduced to keep the tubes cool, but apparently not with complete success.

The continued use of the open-tube type of press for briquetting peat in Russia, Germany and Holland makes the difficulties developed here in its operation somewhat surprising, and it is possible that if the machine were improved at certain points, particularly if the dies were greatly strengthened, it might be found capable of good work here. The advantages claimed for its product are important. The heat developed in the tube draws out the tarry constituents of the peat and appears to induce a chemical change which decreases the hygroscopic power of the briquettes and improves their heating value. A ready demonstration of the former of these results is obtained by placing a briquette made in an open-tube and one made in a resistance-block press in water, allowing them to remain for five minutes, and then setting them aside to dry. In a short time the resistance-block briquette falls apart, partially or wholly, while the open tube briquette remains practically unchanged. The bearing of this fact on the effect of rain on peat fuel is apparent. The solidifation or cementation produced by the heat in the open-tube briquette, by means of the tarry substances it develops, also makes the fuel more dense and less liable to crumble and fall to pieces while in the fire.

Observations were made on the working of two Dickson presses on several occasions. Each punch made from 54 to 60 strokes per minute, and the combined output of the two presses ranged from 17 to 18 tons per day of 10 hours, an average of 17 5 tons per day; the capacity of each press therefore being 8.75 tons briquettes per day The labour required was that of two men, one at $1.40 and the other at $1.20 per day, the latter being free also to render assistance in other ways. The wages of the feeder at the conveyer are also included, or $3.80 a day in all, equal to $0.2171 per ton of finished fuel.

THE DOBSON PRESS.

At the Beaverton works the discharge pipe from the dryer empties into the shoe of an elevator, which carries the dried peat into a large galvanized iron hopper or bin interposed between the dryer and the briquetting press. This reservoir serves several important purposes, and is practically indispensable. It permits of a reserve supply in case of accident to the dryer; allows the dried peat to cool; and enables the press attendant, by drawing from various parts of the bin containing material differing in degree of dryness, to send to the press a supply of peat practically uniform in water content.

The resistance-block press in use at Beaverton is the result of four years' experiments carried on by Mr. Dobson. A Dickson or open-tube press was originally installed, but after long-continued trial was changed for a press embodying Mr. Dobson's own idea, that of a closed die resting on a solid base. One of these presses worked successfully during the summer of 1901, and, with some important improvements, during the summer of 1902, making about 600 tons of briquettes each season. In the Dobson press friction is almost entirely eliminated, each die previous to being re-charged being oiled to prevent friction of the peat against the die wall in the subsequent expulsion of the briquette. It is estimated by Mr. Dobson that the total pressure exerted by each punch is about 50 tons which, the diameter of the briquette being $2\frac{1}{4}$ inches, amounts to $12\frac{1}{2}$ tons per square inch. The large number of dies employed for each punch keeps the temperature low. The briquette is allowed to remain in the die in which it is formed for one cycle of the system (about 6 seconds) and is then subjected to another compression by a second briquette being formed on top of it Immediately after this it is expelled and the second block takes its place. It is found that after the first compression a certain amount of expansion—about one-eighth of an inch in the length of the briquette—takes place, due to the escaping of the imprisoned air forced into the briquette by the descending punch, and this expansion the second compression counteracts, leaving the briquette more solid and compact.

There are two punches in each machine, and to each punch a die block containing eight snugly fitting dies. The dies are heavier in the lower end where the compression takes place. The base block against which the briquettes are formed, remains rigid, unless for any reason the strain exceeds the working pressure, when a set of spiral steel springs, on which the block rests, takes up the excess pressure and prevents any breakage.

The down-thrust of the punches is imparted by two heavy eccentrics faced with roller bearings, and with each stroke of the punch the die block is turned through one-eighth of a revolution. Working in the next die to the compressing punch is the releasing punch which expels the finished briquette, while the third receives an oil swab which coats the inside of the die with a film of crude petroleum, to lessen the friction and facilitate expulsion of the briquette. The two punch-systems of the press act reciprocally, a stroke being delivered at every half revolution of the eccentric shaft. With each down stroke the compressing punch forms a briquette on top of the one previously made in the same die, the discharging punch expels from the next die the bottom or completed briquette, and the third die receives its coating of oil from the oil swab. The cut illustrating the die block and bed of the Dobson press may serve to make clear the construction and working of this part of the machine. Power is transmitted through belting to a pulley on the pinion shaft, and thence by a 5-foot gear wheel operating the eccentric shaft. The machine is steadied by a heavy fly-wheel on each of these two shafts, and runs quietly and with little vibration, notwithstanding the immense and sudden pressure exerted twice every revolution. It makes 50 or 51 revolutions per minute, producing 100 or 102 briquettes per minute. Twenty-five briquettes weigh about 10 lb., consequently the output of the press in 10 hours is about 12½ tons finished fuel.

To operate the press with the accessory shafting, conveyors, etc, 13-h.p. is required, costing $1.391 per day, or $0.1112 per ton of briquettes. The press operator is foreman of the plant, receiving $1.75 per day as wages, making the labor cost of briquetting $0.1400 per ton. The cost of this operation may be summed up as follows per ton of finished fuel:

Power	$ 0.1112
Attendance	0.1400
Total	$ 0.2512

A modification of the open-tube press has lately been tried at Whitewater, Wisconsin, apparently with successful results. The die-block instead of being water-jacketted to keep down the temperature, is heated by steam, and the stroke of the pressing punch is shortened to about 2 inches, working at the same time at a correspondingly higher rate of speed. The effect of the improvements is said to be the production of a denser fuel, the heat developing the tarry constituents of the peat and uniting them with the fibrous material into a more coherent mass. Instead of issuing from the press as separate briquettes the peat comes out in lengths or sticks which may be broken to suitable sizes. The improved press is being experimented with at Welland.

THE NEWINGTON PLANT.

One or other of the two different presses above described has been used in every peat factory hitherto established in Ontario, except that at Newington, where Dominion Peat Products, Limited, are installing a European process of manufacture which does not include briquetting, and the product of which will in fact be "machine" peat, either in the form of blocks or charcoal. At these works after the raw peat is dug from the bog it is to be put through a German kneading or macerating machine called the Lucht mill, in which it is thoroughly mixed or pulped, being afterwards cut into blocks weighing about 2 lb. each. These are placed in drying kilns, and relieved of moisture by the application of heated and inert gases, which, while carrying off the moisture, will not attack the carbon of the peat. If it is desired

to produce peat coke the drying process is carried farther in the same chamber by raising the temperature of the gases to the necessary degree of heat for carbonizing the peat, the liquors and tarry substances in the peat being duly recovered and the coke removed into and cooled in other chambers. The plant has been partly completed, and is expected to be in operation this summer.

Power Generation and Distribution.

The power plant at Welland includes two steam boilers of 120-h. p. each, one of which has sufficient capacity for the present plant; a horizontal engine of 175-h. p.; the necessary pumps for supplying the boiler and press water-jacket; and a small auxiliary portable boiler with super-mounted engine for operating the dryer plant when the remainder of the machinery is not in use. The fuel used is air-dried peat, of which 4 tons per day were consumed when the tests were made, the cost to dig and deliver being $1.359 per day. One engineer was required whose wages were $2.00 per day. Lubricating oil for the entire plant was used at the rate of two gallons per day, costing $0.34. The total cost therefore of generating power for the entire plant was $3.70 per day, or $0.2113 per ton of finished fuel.

The grate bars of the boiler which were designed for burning peat were fitted with ¼-inch space and 5-16 inch bars, thus lessening draught and preventing the fine particles of peat dropping into the ash-pit below. The distance between the grate bars and bottom of the boiler had been reduced to 18 inches, and between boiler and fire wall at the back of the grate to 6 inches, the reason for the latter changes being that peat, both in the air-dried form and briquettes, burns with a short flame. When firing with compressed peat fuel a depth of not more than 4 inches is maintained over the entire surface of the grate. The bottom layer of an inch in depth will be fine ash gradually dropping through the grate spaces as the peat is consumed. The heat is easily and quickly regulated by means of the chimney draught. It is necessary when using briquettes to replenish the fire every 5 minutes.

The fuel employed at Beaverton was dried cedar cordwood, one cord weighing 1700 lb., and costing $1.50. One cord was required for a day's run. Air-dried peat would have been cheaper, but the grate of the boiler was not adapted for burning it. Delivering fuel to the boiler occupied half of one man's time at $1.40 per day, and the engineer in charge was paid at the same rate Four gallons of oil are consumed in the whole plant per day, costing $0.68. The power cost for the entire process, including field operations, is made up as follows:

	per day
Fuel	$1.50
Delivery of fuel	.70
Attendance	1.40
Oil	.68
Total	$4.28

Mr. J. J. Milne, mechanical engineer, Toronto, also examined and reported on the Beaverton plant and found the power required for operating it to be 40-h. p., distributed among the various plant units as follows:

Briquetting press and elevator	13 horse power.
Tram car	4 " "
Excavator	8 " "
Dryer, breaker, conveyors and exhaust fan	14 " "
Total	40 " "

From these figures the proportionate costs for power for the several parts of the process have been deduced in this report.

Cost of Manufacture.

We are now in a position to sum up the cost of manufacturing the briquettes both at Welland and Beaverton. The totals resulting are not directly comparable because of different conditions existing at the two places. At Welland the workable depth of the bog is 3 feet, as against but 2½ feet at Beaverton, which at once gives an advantage to the former in price per ton in distributing the costs of parts of the field operations; also at Welland the capacity of the two briquetting presses is considerably greater than that of the one at Beaverton, while at each the expenditure for labor is about the same.

At Welland, 17½ tons briquettes per day:

	per ton.
Field operations	$0.3771
Attendance on dryer	0.1650
Attendance on presses	0.2171
Power	0.2113
Total	$0.9705

Wages have gone up since the Welland tests were made, and laborers now get at least $1.40 per day. This advance will add proportionately to the cost of manufacture.

At Beaverton, 12½ tons briquettes per day:

	per ton.
Field operations	$ 0.3911
Drying	0.3673
Briquetting	0.2512
Total	$ 1.0096

In neither case do the above figures cover more than actual operating costs, nothing being allowed for interest on capital investment, wear and tear of machinery, royalty charges or profits.

The Peat Machinery Supply Company, Limited, of Beaverton, of which Mr. Alex. Dobson is president, quotes the following prices (subject to revision at any time) for the machinery and apparatus required for a complete peat plant according to the Beaverton plan, with a capacity of 3,000 tons of briquettes per year, working 10 hours per day, or 6,000 to 7,000 tons when run continuously 24 hours per day:

Briquette press	$ 2,500
Dryer	1,350
Breaker	400
Excavator, including motor	600
Generator, tram-car, motor and tracks	1,200
Engine and boiler, 50-h.p.	2,000
Shafting, belts and conveyors	700
Buildings (brick)	1,500
Sundries	200
Total	$10,450

The same company also manufactures the Dickson briquetting press for $1,500, and the Simpson dryer for $1,500 or, including cost of brick work and setting up, for $1,750.

The price of bog lands owned by private individuals will in most cases be less than that of arable land, probably not exceeding $10 or $20; while those belonging to the Crown, situated mostly in more remote districts, may be purchased for much less. In a bog costing say $18 per acre and yielding 1,000 tons fuel per acre, the outlay for land regardless of interest, equals $0.018 per ton of briquettes. Depreciation of plant is difficult of estimation, but let it be taken at 10 per cent. per annum. This on the above cost of $10,450 would require a sum of

$1,045 a year, or $0.3483 per ton on an output of 3,000 tons. Interest on capital at 5 per cent. will amount to say $522.50, or $0.1741 per ton of output. The Dickson patents cover product as well as machinery, and have been assigned to Peat Industries, Limited. A royalty of 25 cents per ton is demanded under these patents on all pressed peat briquettes made in Canada. It must be said that this toll, if legally leviable, will be a decided obstacle to the progress of the peat industry. The Dobson machines are all covered by patents issued or pending, in this and other important manufacturing countries.

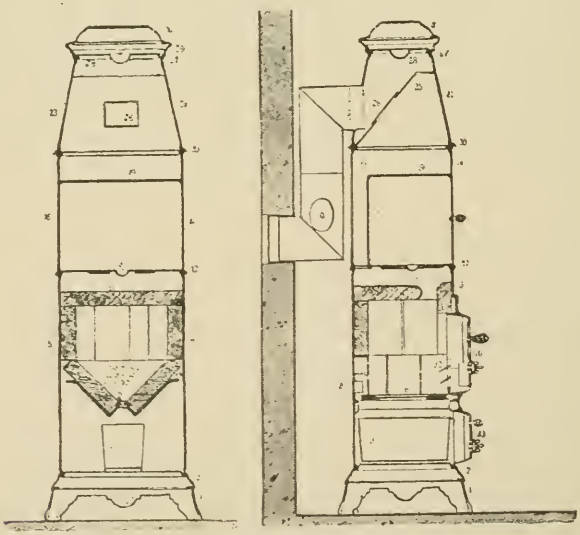
In the following figures an attempt is made to include all items of cost such as those for depreciation, interest, etc., which can only be approximate :

	per ton.
Manufacturing	$ 1.0096
Cost of bog	0.0180
Depreciation of plant	0.3483
Interest on capital	0 1741
Royalty	0.2500
Total	$ 1.8000

The price at which the Beaverton product sold at the factory in 1901 and part of 1902 was $3.00 per ton. In the autumn of the latter year owing to the advance in price of all kinds of fuel, it was increased to $3.75. There was good local demand for all that could be made. At $3.00 per ton peat briquettes of good quality would sell readily in competition with coal at $5.00 per ton and upwards. From conveniently situated plants they could be delivered with reasonable railway freights and sold in cities and towns at $4.00 or $4.50 per ton, at which price they would be about on an equality with anthracite at $6.00 per ton.

Special Apparatus for Burning Peat.

The special stoves and fire places of foreign design are all intended to burn machine peat, and hence are perhaps not entirely suitable for briquettes, which is the form so far taken by

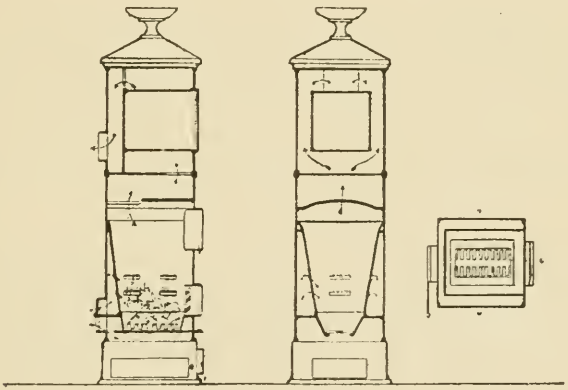


Reck's fissure stove for burning peat.

peat fuel in Ontario. They all aim at including a fuel magazine by which the feed will be automatic or partially so, and at a construction by which the accumulating ashes will not interfere with the function of the fire place and by which the air admitted for combustion will be fully utilized.

The best known peat burner is Reck's fissure stove, a Danish invention, which was originally designed to burn wood, but has proven well adapted for peat (see illustration). These stoves are also used in Germany and Norway, and have been found to have a heating efficiency of 90 per cent., the waste gases leaving the chimney at a temperature of 30° to 50° C. higher than that of the outside air. The peat is stored in a magazine above the fire box, into which it is dropped at intervals by means of a trap door at the bottom. The fire box is V-shaped, and the proper supply of air enters through holes in the side, thus striking the surface of the burning peat. Grate bars are done away with. The draught is therefore never choked, and there is no loss of unconsumed peat. The ashes accumulate in the "V" or trough of the fire box, by opening or shaking which they are dropped into the pan below. Practical tests made in mid-winter with this stove proved that a continuous fire could be kept up for 96 hours on 46 lb. of machine peat by firing seven times at intervals of 12 to 15 hours, an even and suitable temperature being maintained in the rooms during that time.

Christensen's cooking stove for peat is also illustrated. It is built entirely of iron and is somewhat similar to Reck's stove except that the fissure, besides being larger, is provided with



Christensen's peat cook-stove.

a grate. The incoming draught of air circulates about and cools the fire-box becoming at the same time itself heated prior to contact with the peat.

Another peat stove, involving a similar principle of combustion, is made by the firm of Lange, Jenson & Co., Svendborg, with an enlarged magazine, so as to contain a more ample supply of the bulky fuel. (See illustration). The fire box is jacketted, so that the air which enters through the outer wall may circulate about it and be heated before coming in contact with the fuel. The combustion takes place from the top downwards, and the gases travel from the bottom of the storage place outside of the same to the chimney. This heater also attains an efficiency of 90 per cent.

Doubtless these and similar stoves designed for machine peat are more or less suitable for peat briquettes, and later we may expect to see burners of equal efficiency constructed for briquettes, though the need is not so great, since the latter class of fuel so closely resembles anthracite, for which most of our stoves are designed.

For industrial operations, as for instance in generating steam in ordinary boilers, burning apparatus containing similar features have been devised and put into practical use. An example is shown in the accompanying cut. Mr. Thaulow thus describes its working in his report: "The peat (machine peat) is charged into the top of a shaft every half hour by removing a close-fitting lid. The air supply, which is controllable, enters partly through the slanting grate at the bottom, and partly through pipes over the fire box. Fire-proof stone (fire brick)

lines the front part of the boiler, as well as the fire box itself, to withstand the great heat—about 2,500° C.—at which peat burns when the air supply is properly regulated ; the best kind of fire-proof material should be used for this purpose. The influx of cold air which takes place through the fire-box door in the ordinary boiler, is avoided in this case, and as the amount of smoke is less than with any other kind of boiler, the loss of heat through smoke is also less."

There does not appear to be any reason why the ordinary soft-coal boiler equipment, with automatic stoker and automatic dampers, could not be made to work satisfactorily with peat briquettes at small cost. The grate would require to be raised nearer the boiler, and also the fire-wall at the back of the grate ; the spaces between the grate bars should also be reduced one-half. A description of such a grate is given in connection with the Welland peat plant.

In an open grate peat makes a cheerful, strong and steady fire, radiating heat into the room rather than sending it up the chimney, by reason of the small draught required.

Peat Gas.

The use of peat gas for fuel purposes is of long standing in the iron and steel industry of Sweden, in which it is preferred to coal gas on account of its much greater freedom from sulphur and phosphorus. At the rolling mills peat gas is used in the plate furnaces with the result of reducing the formation of scales, particularly in the rolling of thin steel plates. The use of peat gas has contributed largely to improving the quality of Swedish steel, the excellence of which is well known. Peat gas has also come into use as fuel in steam boilers.

THE MERRIFIELD GAS GENERATOR.

In 1901 the perfected Merrifield peat-gas generator was designed and constructed by Mr. L. L. Merrifield, engineer to the Economical Gas Apparatus Construction Company, Limited, of Toronto. The new plant was erected for demonstration purposes at Toronto Junction, and during the autumn of 1901 a number of experiments were made, several of them under the supervision of the Bureau of Mines. Considering the intermittent nature of the tests and the imperfect installation of the plant, a satisfactory showing was obtained. A gas rich in heating value was produced at a fairly steady rate, and at small cost for maintenance and attendance. Without going into detail, it may be stated that the experiments warranted the following conclusions, namely : That, with connections of suitable size, the generator could produce a much larger quantity of gas per hour or minute than was actually obtained ; that the production of gas will depend almost wholly on the quantity of fuel consumed ; and that this in turn depends on the volume of the air blast.

The cost of maintenance or attendance may be reduced to a minimum by handling the bulky peat and removing the ashes by mechanical means, and this would also effect a saving in time.

The Merrifield gas generator resembles the extensively employed Loomis-Pettibone plants, and particularly that one at Nacozari, Mexico, where the usual Loomis system is somewhat modified with a view of making a uniform and fixed gas out of the mixture of water- and producer-gases, which will be higher in calorific power than producer-gas and lower than water-gas, the fuel employed being wood instead of coal. This result is effected by introducing very little steam with the air blast. The ordinary Loomis generator produces alternately producer-gas and water-gas for short periods of five minutes or so each way, each gas being conducted to its own holder. The Merrifield furnaces are also set up in connected pairs, with charging doors at the top. The grates are near the bottom, and below them is a tapering bottomless ash chamber, terminating several inches below the surface of the water in the ash-

pit. The water seals the bottom of the generators, preventing the ingress of air, and yet does not interfere with the discharge of the ashes.

Crude air-dried peat in lumps forms the fuel. By the time it reaches the generators from one-third to one-half will have crumbled into fragments and dust, making a compact and suitable charge for uniform consumption in the furnace.

The air blast is generated by a small blower operated by gas engine, taking gas from the holder. It passes first through the pipes of the condenser, where in condensing the moisture out of the hot gases from the generators it is itself heated up previous to entering the furnaces by way of the chamber below the grate in the bottom. The pipes for injection of steam also enter here. However, on account of the high percentage of moisture contained in the peat fuel, an internal supply of steam for the mixture of water- and producer-gas is usually assured.

After making a good fire, say of wood, in the grate, the peat is charged into the furnaces by the port holes at the top until they are full, when the caps are again clamped down. By forcing the blast for a while and heating the peat into a glowing mass the process becomes properly started, after which the volume of air is adjusted to the production of the maximum capacity of the generators. From now on the operation is continuous except during the loading or re-charging periods, covering a quarter of an hour or so once or twice a day.

Although set up in pairs the generators, like the Nacozari machines, will most of the time work as one, producing the uniform mixed gas ; but should a partial production of water-gas alone be desired, the air blast is shut off and steam injected into one generator, up through the glowing mass of peat, across into and down through the hot coals in the other machine and out thence to the condenser and scrubber. This continues for a few minutes, until the fire has cooled off, so that the air blast is again required to bring it up to the proper temperature, when the same course is again followed, except that this time the direction of the steam in the generator is reversed, entering the bottom of the second and leaving by the first.

Peat, like wood, particularly green wood, is naturally suited on account of its large percentage of moisture, to steady production of the mixed gas, rather than to the alternate generation of first water-gas and then producer-gas, as with dry fuels such as coal.

QUALITY OF MERRIFIELD PEAT-GAS.

In these experimental runs of the Merrifield gas generator the calorific determinations and analyses of the gas were made by Dr. W. Hodgson Ellis, professor of applied chemistry at the School of Practical Science, Toronto. The gas produced on 28th October 1901 gave the following calorific values at the different stages of the operations :

Time.	B. T. U. per cubic foot.
3.00 p.m.	96.4
3.10 ,,	118.
3.20 ,,	149.
3.25 ,,	154.6
3.55 ,,	159.
4 15 ,,	125.
Average	133.7

The quantity of gas made and peat consumed was not ascertained.

The plant had been kept warm during the previous part of the day without generating much gas until this test began, and soon after gas of good quality began to appear a mishap caused a sudden termination of the test. This accounts for the gradual rise and subsequent abrupt fall in the quality of the gas.

Shortly afterwards another test run gave the following quality of gas :

Time.	B. T. U. per cubic foot.
2.10 p.m.	156
2.40 ,,	156
3.10 ,,	157
3.40 ,,	156
4.15 ,,	153
4.30 ,,	155
Average	156

For some hours previous the generators had run steadily and continued so to the end.

In November another run was made giving gas of the following quality :

Time.	Calories per litre.	B.T.U. per cubic foot.
10.45 a.m.	889.6	100.5
10.55 "	906.8	102.5
11.15 "	951.	107.5
11.25 "	889.6	100.5
11.35 "	966.4	109.2
11.45 "	944.1	106.7
11.55 "	1019.	115.2
12.05 "	1041.	117.6
3.20 p.m.	1059.	119.7
3.30 "	1074.	121.4
3.45 "	1092.	123.4
4.00 "	1113.	125.7
4.15 "	1097.	124.0
4.30 "	1147.	129.6
Average	1013.	114.

From these determinations it will be seen that the fuel value of the gas on the day of the test rose from 100 to 130 B.T.U. per cubic foot. The analysis of a sample of the gas taken from the pipe at the conclusion of the calorimeter test, which also marked the end of the whole experiment, gave as follows :

	per cent.
Carbon dioxide, CO_2	20.5
Carbon monoxide, CO	10 2
Methane, CH_4	1.9
Hydrogen, H	22.8
Nitrogen, N	44.6
	100.0

The quantity of carbon dioxide in this sample is larger than was obtained in samples taken in previous tests. In one there was but 12·4 per cent. CO_2, and in another but 7.4 per cent. An increase of CO_2, accompanied by a decrease of CO, such as the above analysis shows, would be caused by the lowering of the temperature of the retort at the end of the operation when the sample was taken.

The analysis of the peat used in the experiment is as follows :

	per cent.
Moisture	25.94
Volatile organic matter	48.41
Fixed carbon	18.69
Ash	6.96

Another run of the generator was made, and the gas this time tested by Mr. J. Walter Wells. The analytical work was conducted at the gas works, but for the calorimeter determinations samples of the gas were taken in a large aspirator can from the gas-holder and tested at the School of Practical Science laboratory in the same Junker's calorimeter as was used at the works by Dr. Ellis in the experiments previously described.

In forcing the gas out of the can by in-running water some of the tarry vapors were lost by condensation, as was apparent on examination of the water from the aspirator. In all other respects, however, the method and apparatus worked admirably.

In the accompanying table of analyses on page 232, samples Nos. 1 to 11 are of the water-gas type, made by injecting a large excess of steam with a moderate air blast over the hot peat in the generator. Samples Nos. 12 to 16 are of producer-gas made in reheating the furnace charges, which were cooled by the flow of steam for the water-gas, by reversing the direction of the air blast through the generators and shutting off all steam. On leaving the holders this gas smelt very strongly of tar and contained considerable vapors.

Another similar Merrifield peat-gas generator was installed at the Trent Valley Peat Fuel Company's works, Kirkfield, to produce fuel gas for the dryer, but no tests were made with it, which is to be regretted, since it is said to have worked satisfactorily.

The original Merrifield generator, first set up at Toronto Junction, on which the above experiments were conducted, has since been removed and reinstalled at the Welland peat works, where, if desired, test runs may be made with it. Later the intention is to incorporate it as part of the peat works, to furnish fuel gas for boilers and dryers.

COST OF GAS PLANT.

From the prospectus of Peat Industries, Limited, concerning this method and all necessary apparatus for the production by it of peat gas, the following is quoted:

"From one ton of compressed peat, analysing approximately: moisture 15 per cent., ash 7 per cent., fixed carbon 21 per cent., volatiles 57 per cent., valued at $1.50 per ton delivered at gas retort, figuring wages at 20 cents per hour, and yearly depreciation at 6 per cent. upon value of machinery, and in a plant capable of producing 40,000 cubic feet of gas hourly, a yield will be had of not less than 100,000 cubic feet of fixed gas, carrying not less than 150 B.T.U. per cubic foot, at a cost not exceeding 2½ cents per 1000 cubic feet. We will supply all apparatus and material for a plant producing not less than 20,000 cubic feet of gas per hour for $5,000, exclusive of freights, cartage to site and erection; larger plants proportionately. Peat carrying up to 30 per cent. moisture may be used, but the yield of gas will be reduced about 1,000 cubic feet for every additional 1 per cent. moisture."

This estimate was made for gas plants situated at a distance from the bogs, to which the peat would have to be shipped, and which therefore must first be manufactured into compressed fuel. If the use of cut-peat be made possible by locating the gas works at the bog, or only at such distance that the peat could be economically transported thereto as cut peat, the cost of the fuel should not exceed 50 to 75 cents per ton.

The above experimental runs with the Merrifield generator were made on cut peat, and the analytical tests show that it gives high results. With compressed peat briquettes the advantages over cut peat would be smaller bulk and therefore less frequent handling, lower moisture content and consequently a higher calorific value.

There are many advantages to be gained in the use of peat by converting it into gaseous fuel, many of them appertaining equally to other gaseous fuels. While the consumption of the solid fuel involves a loss of heat of 25 to 30 per cent. or more, this loss, if the fuel be

Gas made from Cut Peat in Merrifield Gas Generator at Toronto Junction.

	Water-gas, per cent.											Producer-gas, per cent.					Mixture of water and producer-gas, per cent.				
Sample No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Benzine and benzoles	.4	.6	.7	.3	.3	.3	.5	.4	.8	.4	.8	1.8	1.2	1.6	1.0	1.2	.5	.5	.6	.7	.8
Illuminant	.2	.2	.2	.3	.2	.2	.4	.3	.2	.2	.2	.2	.2	.4	.4	.6	.2	.2	.8	.6	.4
Carbon monoxide, CO	17.8	17.8	17.4	17.3	17.2	17.4	17.2	17.2	16.8	16.8	16.5	13.6	13.6	7.8	7.8	11.6	15.0	15.4	15.25	16.6	16.2
Hydrogen, H	14.9	12.1	13.02	12.87	12.98	12.50	13.6	12.5	12 43	12.34	12 58	8.56	8.99	4.19	4.87	3.13	12.5	12.6	11.8	12.2	12.3
Methane, CH_4	4.15	4 26	5.48	6.11	5.19	5.86	5 2	5.86	6.17	6.17	6.29	7.14	7.49	5 24	5.24	4 68	3.9	4 0	4. 2	4.1	4.6
Oxygen, O	.0	.0	.0	.0	.2	.0	.0	.2	.0	.2	.2	.6	.6	.4	.4	.2	.6	.5	.85	.0	.4
Carbon dioxide, CO_2	11.0	10.8	10.3	10.7	10.7	10 7	9.5	10.5	10.8	11.6	9 7	12.4	12.0	11.2	11.8	15.2	13.3	13.2	12.3	12.1	12.2
Nitrogen, N	51.55	54.24	52.9	52 42	53.23	53.04	52.60	53.04	52.8	52 69	53.73	55.7	53.92	69.17	68.48	63.39	54.0	53.6	54.2	53.7	53.1
Calorific determinations, (B. T. U. per cubic foot)						137.72 146.89 146.89 137.92 157.0								109.2 109.8 109.8 109.8					136 8 135.65 136.8 136.7		
Average						145.3								109 6					136 4		

converted into gas, will be reduced to from 15 to 20 per cent. When the fire box is sufficiently large the combustion is complete, and without smoke or soot, leaving always a clean boiler surface. A properly regulated draught insures complete and even combustion. Its comparative freedom from sulphur makes possible a long life for the boiler. A better insulation may be had against loss of heat by radiation, and the hot gases from the generator may be utilized for drying the peat which is to be converted into gas.

The most important reason, however, why peat gas can be more profitably and extensively employed than peat in large industrial works lies in the fact that by locating a large central power station at a suitable bog the cheapest kind of peat, namely cut peat, satisfies all requirements; and the gas may then be piped for distribution, or, if the place of consumption be at too great a distance, it may be converted at the bog into electrical energy.

Sulphur in Ontario Peat.

At the Provincial Assay Office 36 samples of peat from different bogs in Ontario were analysed for their sulphur contents. The results serve to show the general character of our peat in this respect.

Each sample was analysed in duplicate by three different methods. The sulphur content was found to range from 0.112 to 1.00 per cent, with an average of about 0.5 per cent. Pennsylvania anthracite contains over .6 per cent, and bituminous coal over 1.4 per cent. sulphur.

Bogs are however to be had, as the analyses show, which carry little more than traces of sulphur, should freedom from this ingredient be particularly desired.

Dobson's New Peat Machines.

Since last season when the data for the foregoing report were collected, Mr. Dobson has devised and built a new peat-digger, also a peat gatherer or scraper, the former for excavating and spreading the peat in fragments over the surface, as did the original machine, and the latter replacing the hand scrapers in gathering in to the central tram tracks the layers of air-dried peat.

THE IMPROVED EXCAVATOR.

A comparison of the work done by the two diggers shows that the same end is attained by both, but in greater perfection by the new machine, which raises and spreads the fragments of peat more nearly in their natural uncompacted condition, thus facilitating the subsequent evaporation of the moisture. The carriage of the new machine is mounted on four wide faced wheels and is automatically propelled along the edge of the ditch by the same 8-h.p. electric motor and combination of gear wheels and chains, the electric transmission wires trailing along the bog behind. The method employed for digging out the peat however is quite different. Instead of the suspended elevator box overhanging the ditch with its link chain and cutting knives which scraped off the peat and carried the same in fragments up the inside of the box, a six-armed wheel, each arm knife-faced, does the work, revolving at a moderate velocity (between 80 and 100 revolutions per minute) and in a plane at right angles to that of the direction of travel of the carriage.

From tip to tip of opposite arms the wheel gives a diameter of 3 feet, so that deducting the diameter of the hub, the arms or blades are each about 16 inches long. The above mentioned knife face is an attached steel blade parallel to the plane of the wheel. Across the top

of each arm another knife, formed by the sharpened end of a flat sheet-steel band, projects back at right angles to the edge knife and parallel to the shaft, about 4 inches wide and of a like depth. The rear end of this band then bends down along the back of the arm to form a flange which, when in operation, serves to elevate the cut peat to the top of the wheel and from there to throw it by centrifugal action into the conveyer trough, at the farther end of which revolves the paddle-wheel distributor that casts the fragments in a long stream across the bog. A semi-circular wooden casing set around and close to the outside half of the periphery of the digger wheel prevents the peat particles escaping in their elevation before the proper point, from which when thrown out they drop into the above conveyor trough.

The digger wheel with its shaft and pulleys is suspended over the side of the bog into the ditch by a wooden frame which in turn is affixed to a second platform surmounting that of the carriage. This upper platform is hinged to the lower one at its inner end, over which point also the motor is mounted, and at the outer end is free to be raised or lowered by chain and small windlass for the desired depth of cut. The maximum cut will be a few inches less than the diameter of the wheel.

As the carriage travels forward along the top of the bog and close to the edge of the ditch the face of the revolving digger eats its way spirally into a strip of bog along the face of the ditch wall, the end cutters shearing off the strips, and the flanges back of each arm catching them up in the way already described.

A cut a foot deep may be made, which, at the rate of forward travel of 6 feet to 9 feet as desired, gives a much greater capacity than was possible with the original digging machine.

THE MECHANICAL GATHERER.

The scraping machine for gathering the successive layers of air-dried peat fragments over to the central tram line follows the same principle as is employed by the hand scrapers. The improvement lies simply in greater speed and therefore reduced cost. The machine consists of a carriage or platform mounted on three wide-faced wheels the two drivers in front on the same axle and the steering wheel in rear operated by a lever arm above. In front of the two forward wheels a semi-circular sheet steel scraper is suspended, and from above the operator may easily drop or raise it by a lever arm to take off any depth of peat desired (from a fraction of an inch to say 2 inches in depth). The motor, by means of belting, drives the carriage across and back from ditch to tram track at a quick speed, working up the field in a diagonal zig-zag fashion, every time leaving a pile of air-dried peat beside the track.

Cuts are given illustrating the new machines.

The experiments which Peat Industries, Limited, has been carrying on with a short-stroke, rapidly working peat press, have, it is said, demonstrated that a fine product is obtainable by rapidly packing the peat dust in a hot tube, and a press has been built to make fuel by this process. It will hammer the peat by short, quick strokes through an open tube surrounded by a steam chamber. The company has inaugurated field operations on its bog at Welland to supply material for a large tonnage.

THE SUDBURY NICKEL DEPOSITS.

BY A. P. COLEMAN.

In accordance with the instructions of Mr. T. W. Gibson, Director of the Bureau of Mines of Ontario, my field work last summer consisted in the examination of the more important nickel deposits of the Sudbury region. Mr. J. M. Empey was appointed assistant, but after a short time went west to accept an appointment on a Dominion surveying party. His place was taken by Mr. M. T. Culbert, and Mr. F. Y. Harcourt, who rendered efficient service during the summer and continued in the field for some weeks after I was obliged to leave the work.

Our work was much aided by the kind assistance of the officers of the mining companies and by prospectors and others interested in mining. Special thanks are due to the president and officers of the International Nickel Company for permission to make use of the plans and sections of the Copper Cliff and other mines under their control, providing material of the utmost value in the study of ore deposits, since several of their mines have been worked to a considerable depth.

The map and report of Dr. Bell of the Geological Survey of Canada were of course indispensable for a study of the region, and information of much value was obtained from Dr. A. E. Barlow, also of the Survey, who was continuing his work on the geology begun in the previous year. As Dr. Barlow's map, showing the results of his revision of the geology of the region, is expected to appear before long, it was decided to confine my work for the most part to a study of the mines and their immediate surroundings. As the northern range had not been mapped by the Geological Survey, and as I had in previous years examined parts of it, it seemed proper that the Bureau of Mines should undertake part of the field work in this region, though no working mines exist in it. Although the time at our disposal was not sufficient to cover the whole range, a good beginning has been made at the eastern end of it where some large ore deposits are known to exist.

Since the region was mapped by Dr. Bell and his assistants in 1890,[1] the country has been greatly opened up, partly by the settlement and clearing of the land, but to a greater extent by mining and prospecting operations, by the spread of forest fires, which in many places have left the rock completely bare, and by the extension of railroads and the cutting of wagon roads to the various mines and settlements. Naturally a much clearer idea of the field geology is possible now than in earlier days, and a considerable body of information as to the associations of the ore bodies has been accumulated by mining operations; so that a fresh study of this unique and important mining region is demanded.

Geological Literature of the Region.

The literature of the Sudbury mining region has grown to respectable proportions and should be referred to briefly before proceeding to describe the results of our field work, though the history of the development of the nickel deposits is more or less familiar to the public through the political discussions that have arisen as to the policy proper to pursue regarding them.

Although in 1856 nickel was found in small amounts by Sterry Hunt in ore collected by Murray north of Whitefish lake, near what is now Naughton station on the "Soo" line,[2] no attention was paid to the ores of the region until the Canadian Pacific railway was constructed, giving freer access. In the building of the line the ore body of the Murray mine was disclosed

[1] Geol. Sur. Can., 1890-91, F.

[2] Geol. Sur. Can., 1853-56, pp. 180 and 189.

in 1882, and in the following year the Stobie, Copper Cliff, and other deposits were found, but were looked on as of value only for their copper contents. It was not till three or four years later, when a thousand tons of ore had been shipped to England from the Copper Cliff mine, that the value of the pyrrhotite as nickel ore was recognized.[3]

In 1890, Dr. Bell and others refer to the Sudbury nickel region in the Report of the Royal Commission on the Mineral Resources of Ontario ;[4] and in the following year Dr. Bell gives an account of the ore bodies of the region in the Report of the Bureau of Mines.[5] In the volume of the Geological Survey for 1890 his report on the Sudbury Mining District appears as part F. including the results of his field work from 1888 to 1890, as well as those of Barlow and various assistants In the Bureau of Mines Report for 1891, we find the first statistics of the production of nickel ore, and in the following years the nickel contents of the matte produced are given year by year, and various references are made to the mines and their geological relationships by mining inspectors and geologists, as well as accounts of the metallurgy of nickel and its value in the manufacture of armor plate, etc.

In 1891 Garnier, who had discovered the New Caledonia nickel deposits, gives an important account of the Sudbury mines,[6] and Levat in 1892 describes the treatment of the Sudbury ores, comparing them with those of New Caledonia.[7]

In the earlier reports the nickel ore was said to occur in masses of diorite at their contact with granitic gneiss, etc., but in 1892 Baron von Foullon described the rock from Murray mines as containing hypersthene and diallage, and hence belonging to the norite variety of gabbro [8] ; and in 1893 it was shown by the present writer that the country rock of nickel deposits south of Clear lake in the northern range was gabbro containing diallage and enstatite.[9]

Dr. T. L. Walker, in his Inaugural Dissertation on the Sudbury Nickel District, proves that where unweathered the nickel-bearing rock contains hypersthene and is, as Foullon had said, norite. He makes the additional important observation that this basic eruptive often passes by insensible gradations into syenite and granite.[10] His views are confirmed by Barlow in 1901.[11]

Dr. Adams and others, following the theory of Vogt for the Scandinavian nickel deposits, have explained the Sudbury deposits as very basic segregations at the margin of the eruptive mass with which they are connected.[12]

There have been many papers on the minerals belonging to the nickel ores, but these need not be referred to at this point, nor need those that describe the metallurgical methods applied to the ores at Copper Cliff and elsewhere.

Topography of the District.

The area known to include nickel ores of promise in the Sudbury district is about 40 miles long, from Worthington mine in Drury township northeast to lake Wahnapitae, and about 20 miles broad, from the Evans mine northwest to the township of Levack ; but the mines which have actually been producers of ore on any important scale are confined to a belt about 3 miles wide and 26 miles long, stretching from Worthington to the Blezard mine. Our field work was mainly devoted to the belt just defined, though some time was put on the Blue lake, Whistle and other properties near lake Wahnapitae and the adjoining part of the northern range.

[3] See Dr. Bell in Bur. Mines 1891, p. 89.
[4] pp. 23, 67-8, 88, 100, 404-5 and 433-5.
[5] Bur. Mines, 1891, pp. 88-90.
[6] Men. Soc. des. Ing. Civils, 1891.
[7] An des Mines, 1892, Form I, 2 Livraison ; also translation in Bur. Mines, 1892, pp. 149, etc.
[8] Jahr b.d. k-k geol. Reichsanstalt, Vienna, 1892, pp. 223-310.
[9] Rocks of Glear lake near Sudbury, Can. Rec. Sc., Apr., 1893, p. 344.
[10] Quar. Jour.Geol. Soc. Vol. LIII, pp. 40-46
[11] Geo. Sur. Can. Sum. Rep., p. 143.
[12] Can. Min. Rev., Jan , 1894, p. 8.

In general the region is one of low relief, often quite flat or with gently rounded hills, though some ridges of unusually durable quartzite or gabbro rise as hills 100 or 200 feet above the ordinary level. The low ground is frequently covered with lacustrine clay, furnishing good farming land but obscuring the field relationships of the older rocks. Lakes are on the whole less numerous than in most Archæan districts, as noted by Dr. Bell, and little of the work can be done with canoes. The railways with their rock cuttings afford great assistance to the geologist, and now that the main line of the Canadian Pacific and the "Soo" branch with their spurs to the Frood, Stobie, Blezard and other mines, are supplemented by the Manitoulin and North Shore railway, reaching from Sudbury to the Gertrude mine, there are excellent bases from which to work.

The whole region has been laid off into townships six miles square, the lines for separate miles and sometimes for half miles also having been run; but the work was often carelessly done, and in many parts successive bush fires have completely removed the timber, and with it all trace of the lines or corner posts. In the township of McKim one can go for miles without finding a trace of the old survey. It would be of the greatest service to geologists and also to the settlers and property owners if lines should be re-run with iron posts at the corners.

The more or less complete burning off of the forest has provided unusual opportunities to study the stratigraphy, and it is fortunate that so experienced a geologist as Dr. Barlow is in the field to take advantage of it.

The exact demarcation of the boundaries, especially of the norite masses which contain the ore bodies, is of the utmost importance from the practical as well as the theoretical side. The introduction of magnetic surveys of the norite contacts by Dr. Mond, Edison and the Clergues is one of the latest and most interesting methods of prospecting adopted in this district, and though the value of the results is still somewhat disputed, there is a probability that the method may have a future of importance. Unfortunately the pyrrhotite is somewhat variable in its magnetism and is never so strongly attractive as magnetite. Specimens obtained from Blue lake are the most magnetic known, and fragments chosen with the right orientation readily attract iron filings to their north and south poles.

The maps available include the old and often faulty township maps, Dr. Bell's Sudbury sheet of 1890, the Bureau of Mines geologically colored sheet of 1892, both on the scale of four miles to the inch; and the two-mile-to-the-inch map of the Bureau of Mines accompanying the Report of 1900. The last two maps are copies of Dr. Bell's map with few changes, so far as the geology is concerned, but are of importance as showing the locations taken up to date.

It is understood, of course, that under present conditions it is possible to map the geology with much greater precision than twelve years ago when the country was almost devoid of roads and mainly covered with bush. The old map has, however, served an excellent purpose in spite of numerous inaccuracies. Its worst flaw is the want of a distinction between the norite bands and the adjoining hornblende porphyrites and greenstones. As the former are nickel-bearing and the latter are not, the importance of the distinction is evident. The two rocks being often much alike, it is not surprising that in the early days they were mapped together. Their separation will be the most striking change in future maps.

For detailed mapping near the mines we have found it necessary to do a considerable amount of topographical work in order to fix the geology, though we have avoided this as much as possible, since Dr. Barlow and his assistant, Mr. Leroi, have largely covered the ground in their field work.

We are under great obligations to the mine authorities for permission to copy their surface and underground plans, which are, of course, indispensable to a satisfactory study of the ore bodies and their surroundings. In only one or two instances have objections been made to

giving the fullest information possible. In most cases we have found it necessary, however, to supplement the surface plans by work of our own, since the needs of the miner are not so comprehensive as those of the geologist.

For topography we have depended mainly on the compass and pacing, using the dial compass when in the neighborhood of ore bodies, where, of course, there is local attraction due to the pyrrhotite. The presence of numerous swamps and hills interferes with the most accurate work by these methods, but the results are sufficiently correct for our purpose. The greatest difficulty met with, however, is the rather wide-spread drift sheet hiding the rock completely in the lower parts of the region.

As a preparation for the study of the ore deposits themselves, it was decided to do some general field work to become acquainted with the rock types of the region and their usual associations. For this purpose the township of McKim, of which Sudbury is the centre, was chosen, since the rock is here best exposed and the outcrops are easily accessible by roads or railways. As Dr. Barlow is to include the township in his forthcoming map it will be unnecessary to give the results of our work in detail accompanied by a map, and we shall confine ourselves here to a discussion of the main rocks and their relationships.

Sedimentary Rocks Near Sudbury.

Although eruptives of various kinds cover large areas in the Sudbury region the greater part of the Huronian consists of sedimentary rocks, partly, however, of eruptive origin in the form of volcanic ash and stones. The sediments near Sudbury range from quartzite to arkose, graywacké, and graywacké conglomerate; and all gradations of these three types may occur as well as layers of a slaty character. In the neighborhood of some of the eruptive masses the sedimentary rocks are greatly rearranged and metamorphosed into various schists, such as mica schist, chlorite schist, hornblende schist, or fine-grained gneiss. Often they have secondary minerals developed in them, including staurolite and garnet, and some of the altered bands are crowded with large white crystal forms apparently of staurolite, now turned into pseudomorphs of fine grained quartz.

Perhaps the most prevalent rock is a very fine-grained arkose or halleflinta weathering to pale flesh color and looking very much like Laurentian granite or gneiss until examined closely. Under the microscope, too, it often simulates closely a felsite and has been so described,[13] but its general character and associations go to show that it is a re-crystallized sediment. Stratification is seldom marked, but occasionally one finds pebbles suggesting water-worn materials. In some cases, however, the conglomeratic phase is due to faulting and shearing.

Closely connected with this is a gray quartzite or graywacké with less feldspar and often thin bands of slaty material, showing very uniform stratification on weathered surfaces, where the slaty layers are more easily attacked, leaving the harder layers rich in quartz to stand out. Though the freshly broken rock shows very little structure, on the weathered surfaces all the structures of sands and clays laid down in water may be seen, and there is no reason to suppose that they are not ordinary marine deposits. In some places these well stratified quartzites have been greatly faulted as on the hill northwest of Sudbury; and more slaty varieties often contain innumerable whiter or darker crystals, now apparently changed to finely granular quartz, perhaps Dr. Selwyn's rice rocks.[14]

A third sedimentary rock is graywacké conglomerate, probably later in age than the two rocks previously mentioned. It consists of a gray or black muddy basis with many angular fragments of quartz imbedded in it, and in places large numbers of pebbles evidently rounded by

[13] Geol. Sur. Can., Vol. V., Part F. Prof. Williams' notes on the rock.

[14] Geol. Sur. Can., Vol. V., p. 45. F.

water, including various granites and quartzites as well as crystalline quartz. There is a point on the north shore of Ramsay lake where this seems to be a basal conglomerate overturned under the lower quartzite, so as now to be nearly reversed in position, but the evidence on this point is not entirely clear.

The most typical conglomerate in the region, however, extends as a much broken band from northeast to southwest near Stobie mine, showing crowded pebbles and small boulders of more than half a dozen kinds, including granite, quartzite and several sorts of green schist. Near by is a small hill of white quartzite, both rocks more like the Huronian of lake Huron than the others of the region, which have usually suffered more re-crystallization.

All of these sediments have a strike as a rule between 35° and 90° east of north, corresponding to the direction of the nickel range; and the harder quartzites and arkoses rise as sharp ridges running northeast and southwest.

To the northwest of Sudbury and its belt of nickel ranges there is a roughly oval area of rocks having a more modern look than those just described. They include at the base a considerable thickness of volcanic tuffs made of innumerable fragments of eruptive materials or of dark glass, now cemented into a dark gray rock. This represents a series of great volcanic eruptions, the ash and sand and lapilli probably having been dropped into the sea. Above the tuffs are gray sandstones or arkoses more like ordinary marine deposits, and black slates with a well-marked cleavage across the planes of sedimentation. The latter rocks contain a considerable percentage of carbon, and have tempted the Sudbury people to hope for coal from them. The curious deposit of anthraxolite of Balfour township fills an irregular vein in these slates.

The rocks just mentioned are thought by Dr. Bell to be of Cambrian age, and therefore much later than the sediments to the southeast of the nickel range.

The sedimentary rocks near Sudbury become more schistose as they approach the nickel range and other eruptive masses, and are joined by a variable band of greenstones, no doubt largely eruptive in origin. They include chloritic and hornblendic schists, hornblende porphyroids and porphyrites, as well as lava-like rocks made up of dark green ellipsoids of much weathered trap having an inch or two of the outside of the oval masses filled with white spots or amygdules.

Among the green schists and mixed with the other rocks mentioned are hornblende schists filled with small oval white spots which look like the amygdules just mentioned; but which prove to consist of very fine-grained quartz. On weathered surfaces these resist better than other parts of the rock, and stand out like thickly scattered white peas or beans. The origin of the structure is uncertain.

All of the sediments and the accompanying schists are, as a rule, steeply tilted, often standing nearly vertical, and all show numerous faults; features, no doubt, connected with the adjoining eruptive masses.

The Eruptives of the Region.

It will be necessary to describe briefly the eruptive rocks of the region before taking up the ore deposits, since the latter are intimately connected with them. However, it is intended to take up here only the easily recognized features, leaving the microscopic characters of these interesting rocks for the most part to be described under the head of petrography. A very good account of most of them is to be found in Professor T. L. Walker's study of the Sudbury region,[15] which will, in the main, be followed here.

The most important of the eruptives is naturally the one containing the ore deposits, generally called diorite in the region, because when weathered, as it usually is, the chief minerals seen are hornblende and plagioclase feldspar, the components of diorite. It has been

[15]Quart. Jour. Geol. Soc., Vol. LIII., pp. 40-66.

shown by various petrographers, however, that the fresher examples of the rock are a variety of gabbro called norite, in which the dark mineral is largely hypersthene, or rhombic augite. The norite is usually gray, fine to coarse-grained, and contains in general bluish grains of quartz and scales of black mica. In many places it is pock-marked with brown spots, where small grains of nickel ore (pyrrhotite) have weathered; and in fewer places the pyrrhotite with some copper pyrites increases in amount until the rock materials are crowded out, and a rusty mass of gossan indicates an ore body of workable character beneath.

Some years ago Dr. Walker discovered the very interesting fact that the band of norite running for miles northeast and southwest to the south of the oval area of volcanic tuffs and sandstones fades off toward the northwest into an intermediate rock consisting of micropegmatite, having a paler gray or a pink color on weathered surfaces, and finally passing into flesh-colored granite or gneiss of a very different character from the norite with which the eruptive started.

From the norite side of the eruptive band just mentioned are narrow offshoots of finer-grained gabbro, which may run dike-like for two or three miles into the schists and quartzites, often, however, with some interruptions. The ore bodies not arranged on the margin of the norite are strung out along these projections.

Beside the main band of gabbro or norite there are numerous smaller areas of gabbro apparently unconnected with more acid rocks, such as micropegmatite and granite. These rise through the sedimentary rocks as long bands, or as irregularly shaped masses which have partly the character of laccoliths or cistern-like masses of eruptive rock parting the strata and doming up the overlying beds into rounded forms. At the present time the laccoliths and the strata heaved up by them are greatly worn down, leaving hills of gabbro surrounded by an upturned fringe of steeply tilted quartzite or graywacké resting against their flanks. A good example of this is to be found in the hill to the east of Sudbury, where a rounded mass of gabbro occupies a space of about two square miles enclosed in the stratified rocks. A projection runs three or four miles to the southwest from the mass just mentioned, and forms a range of precipitous hills along the north side of Kelly's lake.

There are several marked differences between the laccolithic gabbros and the norites of the main range. They have no connection with granite or gneiss, but in their central parts may have masses or bands of coarser-grained, often white rock consisting largely of plagioclase mixed with quartz and running into masses of pure quartz. No large ore bodies have been found in them. One striking difference consists in their greater resistance to erosion as compared with the main range. The latter weathers easily and generally forms low flat areas often partly drift-covered; while the laccolithic variety resists weathering much better and stands up as bare hills and ridges.

Beside the gabbros there are smaller masses and bands of dark-green eruptives composed chiefly of hornblende, often coarse-grained, which may be called amphibolites and hornblende porphyrites, and which seem in many cases to blend into the schists mentioned above. As these resist well they tend to stand up as ridges or hills, examples of which will be mentioned in the description of the mines.

The more acid or silicious eruptive rocks of the region are chiefly granites, flesh-red to gray in color and from coarse to fine-grained. In addition to the granitic edge on the northwest flank of the nickel bearing eruptive, there appear to be two granites of distinct characters and ages; a coarse-grained porphyritic granite or gneiss of Laurentian appearance, older than the norite; and a finer-grained red granite without porphyritic feldspars, which is later than the norite and has penetrated it as dikes. These two granites form ridges of hills parallel to the general strike of the region and are often quite prominent. The only other acid eruptive seen is quartz porphyry in small amounts not far from the Stobie mine.

The Sudbury Nickel Deposits; Bedding of quartzite and slate.

The Sudbury Nickel Deposits; Creighton mine looking Northwest.

The Sudbury Nickel Deposits; Open pit, Creighton mine.

Creighton nickel mine in winter.

Creighton nickel mine, showing dikes in ore.

Certain gray granites from the east of McKim township differ in appearance from the red granites to the west, and are possibly due to the fusion or recrystallization of rocks like the arkoses, as suggested by Prof. Walker, but until their relationships are more completely worked out this must remain doubtful.

Later than any of the other rocks of the region and cutting them all impartially are dikes of olivine diabase of every dimension up to more than 100 paces in width, and traceable sometimes for several miles. The wider dikes are coarse-grained and resemble the coarser varieties of norite belonging to the nickel range, but they never contain the blue quartz so often found in the norite. Small dikes of diabase or diabase porphyrite occur at most of the nickel mines, often cutting the ore bodies.

Pleistocene Deposits.

The geological record of the Sudbury region, as shown in the solid rocks, ends in very ancient times, probably Huronian, certainly not later than Cambrian ; and from those far off ages to the Pleistocene the region seems to have been dry land and exposed to profound erosion, which has cut down the Archæan mountains and the possibly somewhat later volcanoes almost to a peneplain, leaving only the deep lying stumps of what were once important ranges.

The scouring of the ice sheets, which came from the northeast, as shown by striations on fresh surfaces, has been very effective and the hill tops are usually smoothed and rounded. In some cases two ice advances are indicated by striations crossing one another, as on the flank of the hill just east of the town, where earlier and stronger scorings run 30° west of south, while later ones have a direction of 15° west of south.

Boulder clay is not a very prominent feature, perhaps because largely removed during the time of post-glacial lakes, which have left their marks very plainly on the region. Where the softer rocks have been hollowed out between the hills formed by the more resistant ones, the floor of solid rock is often hidden by lake deposits, stratified gray clay or yellow sand. Northeast of Sudbury and to the west of Rayside station as far as Chelmsford we find flat plains of clay, which make good farming land and are now taken up by settlers. The same sheet of clay covers the lower ground near Copper Cliff, hiding the rocks for hundreds of acres.

The level of these broad clay flats is from 848 to 881 feet above the sea, and there is little doubt that a lake with a very irregular outline covered the region to the upper level, or a little higher, washing down the clay and distributing it on its bed. The shape of the lake has not been worked out in detail, but it must have had many arms and islands, and have covered some hundreds of square miles. East of the clay deposits, and often higher up, are broad plains or terraces of sand, usually broken by a few hills of rock and frequently containing large and deep kettles with no outlet except by soakage through the drift. Often such basins contain a pond or lake, but some of them are empty. Their origin is generally explained by supposing that on the retreat of the ice sheet for the last time large masses of ice were buried under lake deposits of sand and gravel, and as these slowly melted the surface sank, leaving at last a steep walled basin draining through some gravelly bed.[16]

The sandy plains cover a large area and interfere with the examination of the solid geology of the region, so that up to the present it is uncertain whether the norite band containing the nickel ores extends beneath it to join the nickel belt west of lake Wahnapitae. How deep these deposits are is unknown, but undoubtedly the stratified sands and clays and the swampy tracts due to imperfect adjustment of the drainage since the Ice Age form a serious hindrance to the geologist and prospector. Whether the recently introduced method of prospecting for ore with the dip needle will do away with this difficulty is still uncertain, but apparently no important ore bodies previously unknown have yet been disclosed by it, though many miles along the contact of the norite and adjoining rocks have been examined.

[16] See Bur. Mines, 1897, p. 137.

The Main Nickel Range.

The main nickel range of the Sudbury region is incorrectly shown on the geographical map of the region prepared by Dr. Bell and on all later geologically colored maps, which are largely copies of his ; since the norite or gabbro associated with the ore bodies is not separated in the coloring from adjoining greenstones and hornblende porphyrites. The most important practical improvement in the map now under preparation by Dr. Barlow will probably be this separation ; for it is now very probable that all important ore bodies occur at the edge of the norite, no matter what the adjoining rock may be, granite, quartzite or hornblende porphyrite ; or on dike-like extensions of norite into the others. Until Dr. Barlow's map appears the exact location of this boundary will be somewhat uncertain, but the following statement drawn from his work may be of service in the meantime :—

"The most important and famous band of norite, however, is the southern belt, which, starting in more or less isolated patches and areas in the township of Drury, coalesces into one large band in the eastern part of this township. It then extends in unbroken continuity in a northeasterly direction as far as lot 3, concession III, of Garson, a distance of over thirty-two miles. The basic or norite portions of this band would average nearly two miles in width throughout its length. In the township of Denison, the basic rocks extend over the greater part of the third, fourth, fifth and sixth concessions. About lot two, the band attains its maximum width of nearly four miles, but a short distance east it is divided up into two belts by the intrusion of a mass of coarse "augen" granitite-gneiss. The northerly, which is the more important of these two belts, has a course of NN.E. through the northeastern part of the township of Denison and the southeastern corner of the township of Fairbank. Thence it extends across the Vermilion river, covering part of the township of Graham and portions of the township of Creighton. From thence it runs across the central part of Snider, through the northwestern corner of McKim and the southeastern part of Blezard and, with the exception of lots 1 and 2, extends continuously across concession III. of Garson. Through Creighton and Graham, this belt is over two miles in width, while near the old Dominion mine it is almost three miles from north to south across the norite. The southern branch of this great belt runs across the Vermilion river, covering parts of Graham, and thence on through Waters past Copper Cliff, where it rejoins the other branch. The lenticular mass of granitite gneiss which divides this southern belt into two portions, thus occupies a strip of country one and a half to two miles wide through Graham and Snider, terminating at or near the Copper Cliff mines. It is newer than the norite, piercing and altering the basic rock."[17]

The account of the main range just quoted must of course be looked on as provisional and subject to revision when Dr. Barlow's final report appears. The portion of the account referring to the division of the range, does not entirely tally with my own observations, as will be seen later, the outcrops of gabbro to the south of the main range appearing to be very narrow and scattered, not at all to be compared to the solid band two or three miles wide on the north. It is doubtful also whether the granite between the north and the south parts of the range is all later than the norite, though some of it certainly is.

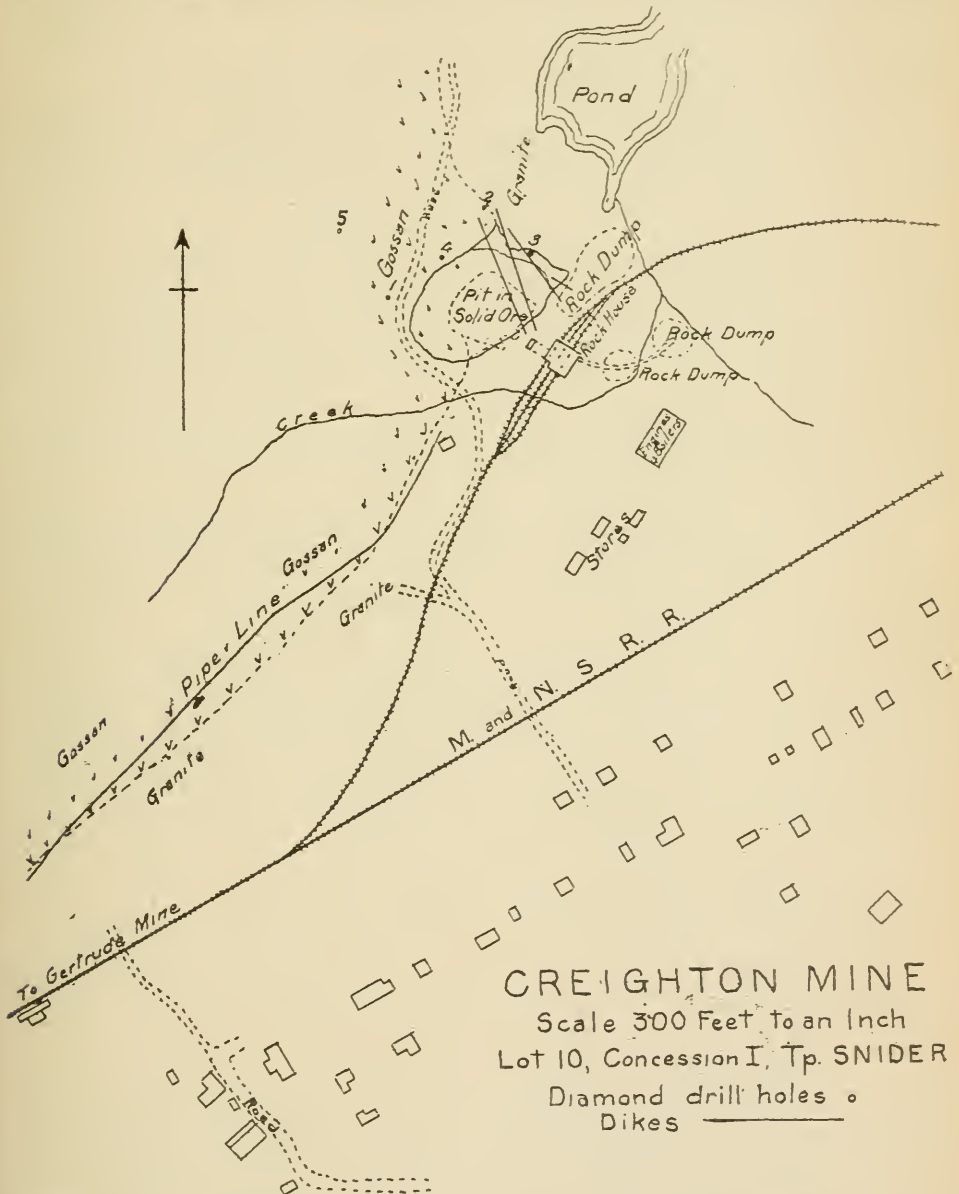
The best view of the arrangement, so far as my own examination goes, is to suppose that the ore deposits of what Dr. Barlow calls the southern branch of the range are connected with more or less dike-like projections from various points on the northern range. If this is correct we can divide the mines into those situated on the south or southeastern edge of the norite band, such as the Gertrude, Creighton, North Star, Elsie, Murray and Blezard ; and those situated on narrow offshoots to the south or southeast, including perhaps the Worthington, the Evans and Copper Cliff, the Frood and Stobie.

It will probably be best to take up in detail a typical mine of each class and refer to the others less fully. As good examples of each the Creighton may be chosen from the main range and the Copper Cliff from the southern off-shoots.

[17] Sum. Rep. Geol. Sur. 1901, pp. 144-5.

The Creighton Mine.

The Creighton mine is situated at the southern end of the line between Creighton and Snider townships, in lot 10 of the first concession of the latter township, about eleven miles west of Sudbury by the Manitoulin and North Shore railway. One of the Salter's old meridian



lines runs close to it or through it, and the ore body was really discovered by Murray in 1855, forty-five years before it was opened up as a mine.[18] Salter had found great magnetic disturbance at a point on his line about five miles north of Whitefish lake; and Murray examined

[18] Geol. Sur. Can., 1853-56, p, 180. (Prof. Miller has been good enough to call my attention to this reference in Murray's report).

into its cause, which he reports to be due "to the presence of an immense mass of magnetic trap." He adds: "Specimens of this trap have been given to Mr. Hunt for analysis, and the result of his investigation shows that it contains magnetic iron ore and magnetic iron pyrites generally disseminated through the rock, the former in very small grains; titaniferous iron was found associated with the magnetic ore, and a small quantity of nickel and copper with the pyrites. It was remarked that notwithstanding the powerful influence of this magnetic mass in causing a general local attraction, the contact of fragments of it with the compass, although producing a slight effect, rarely occasioned any remarkable agitation of the needle."

The deposit was rediscovered in recent times, it is said, by the well-known prospector Henry Ranger; and came into possession of the Canadian Copper Company, which in 1900 began to open it up. The first ore was shipped from it in 1901, and last summer for at least part of the time 17,000 tons of ore per month were shipped to Copper Cliff for treatment, making this much the most productive nickel mine in the world.

The mine has been chosen as a typical one with which to begin the description of the ore bodies along the southeastern edge of the norite band, mainly because it is worked on a large scale as an open pit, thus giving excellent opportunities for a study of its relationships.

In July the pit was about 230 feet across from east to west, and 150 feet from north to south, of oval shape, and 60 feet deep. Its floor was nearly level and had dimensions of about 150 by 100 feet. An inclined shaft on the southeast side served for hoisting, and the small size of the rock dump showed that except in the sinking of the shaft almost all of the excavation was in solid ore. The gleam of the freshly broken surfaces of bronzy pyrrhotite in the sunshine made a very impressive scene.

The pit is sunk in comparatively low ground with a swampy pond to the northeast, a marsh to the southwest, and a steep gossan-stained hill to the northwest. To the southeast is the railway, and then a steep ridge of granite and gneiss, with the village partly at its foot and partly on its slope.

The line of contact between the norite to the northwest and the granite and gneiss to the southwest is not always traceable with exactness, because of a slight covering of drift or of swamp in many places, and the spread of gossan products over other parts; but, as shown on the map, the usual direction of northeast and southwest is sharply broken at the ore body by a bend to the northwest. This direction is held for only 250 feet, when the line of contact turns north and continues so for nearly half a mile. Beyond this it was not followed. Though the greatest mass of ore is in this sharp angle, the gossan extends more or less continuously along the hill for half a mile to the southwest, where a wide swamp intervenes; and patches of gossan are found also for several hundred yards on the ridges to the northwest.

The ore body to the northwest of the open pit was covered to the depth of five or six feet with yellowish, sandy boulder clay, and when this was stripped the surface of ore was found to be entirely unweathered and beautifully polished and grooved by glacial action, the direction of the grooves being 35° west of south. Evidently the pre-glacial gossan, which must have been deep over so easily attacked a mineral as pyrrhotite, had been completely removed and the surface scoured down to the unchanged sulphides, which have been protected from weathering since the Ice Age by the coating of boulder clay. Doubtless many thousands of tons of nickel and copper have in the past been set free by weathering as soluble salts which have been washed down by the rivers, ultimately reaching the sea, since no secondary deposits of nickel are known in Ontario.

ROCK ASSOCIATIONS OF THE DEPOSIT.

The gabbro or norite of the nickel range is occasionally greatly decomposed at the edge of the ore body through the weathering of small inclusions of ore, producing sulphates, but one

often finds just as fresh rock at the ore body and mixed with particles of ore as at a distance from the open pit. The gneissic and granitic rocks on the other side of the contact are also gossan-stained and far from fresh in appearance.

Southeast of the contact along the railway one finds comparatively fresh material in the shallow cuttings, and also near the boiler house, where coarse-grained porphyritic syenite with a little quartz is found. The rock is flesh-colored to reddish gray in color and strongly suggests the Laurentian. This is cut in places along the railway to the southwest by finer-grained, reddish-gray quartz syenites and in other places masses of dark, fine-grained greenstone occur enclosed in the porphyritic syenite. The steep hill southeast of the railway shows mainly coarse gneiss, often well banded, but with some finer parts, suggesting a rearranged arkose and patches of porphyrite. Here one finds also a crush conglomerate of gneissoid materials showing earth movements since the rock consolidated.

To the north of the sharp bend of the granitoid gneiss enclosing the ore body the contact between the gabbro and gneiss is sometimes not very certain, and occasionally a rock that seems intermediate may be seen along the wood road. On the whole however the impression is formed that the granitoid gneiss is older than the gabbro, the latter sometimes growing finer-grained at the edge of the gneiss.

The gabbro is not fresh in the Creighton region, so that hypersthene can seldom be recognized in thin sections, leaving it doubtful if it should all be called norite. It is usually a coarse-grained gray rock with blue grains of quartz and scales of black mica as in other regions; and for a mile north of the mine no great change in its character is noted. It occasionally encloses patches of greenstone like those occurring in the granite.

The latest rock in the region is the diabase, whose dikes cut not alone the other rocks but the ore body also. They are particularly numerous at the Creighton mine, no less than five showing themselves in the pit or on the surface stripped; none however, more than three or four feet in width, though much wider dikes occur at no great distance to the northeast and southwest. Most of the dikes are of diabase porphyrite with large plate-like plagioclase crystals, and the texture is much finer at the edge than in the middle, especially where the edge comes against ore instead of rock. The most easterly dike is not porphyritic. The three most prominent dikes cutting the ore body run 20°, 15° and 35° west of north respectively, and dip to the southwest, two of them apparently meeting and crossing in the wall of the open pit. The most westerly seems to bend round so as to become nearly horizontal, but it is hard to follow on the smoke-blackened wall. The dikes send off narrow branches into the ore and have attached to their sides numerous well-rounded, boulder-like prominences which at first sight suggest actual boulders; but the connection with the parent dyke can sometimes be seen, and the pseudo-boulders are coarser-grained in the middle, and become compact and almost glassy at the contact with the ore just as the dikes do.

THE ORE BODY.

The open pit is sunk largely in pure ore, though portions of both norite and granitoid gneiss seem to be partly or entirely enclosed in it, and the southeastern and northeastern edges of the pit consist of the much-weathered gneiss which slopes irregularly to the northwest, while toward the west more or less norite is found. The edges of the ore body towards the country rock are not very sharp, since both pyrrhotite and copper pyrites are found disseminated not only through the adjoining norite but also frequently in the gneiss. The diabase porphyrite dikes, however, run impartially through rock or ore and evidently reached their place after the ore-body was in its present position. Nevertheless some secondary deposition has occurred since the dikes were filled, for the compact or glassy edges of the

latter are often somewhat fractured, the fissures being filled with the sulphides. The appearance almost suggests that the fused sulphides had penetrated fissures in the already cold porphyrite; but no doubt the deposition of the pyrrhotite and chalcopyrite was from aqueous solutions after the somewhat rapid cooling and cracking of the surface of the eruptive. There has been a certain amount of faulting since the dikes occupied their places, for they are somewhat broken and slickensided, and fissures opened thus in the ore body must have provided channels in which solutions could circulate. Occasionally thin films of the sulphides lie between the slickensided surfaces. It is likely that the brecciated norite and also granitoid gneiss with sulphides cementing the fragments have been crushed in such earth movements; perhaps, however, at the time the fissures were opened to allow the molten porphyrite to ascend as dikes, and not in later times when the dike rocks themselves were fractured.

The granite sometimes has drusy holes with fairly large feldspar crystals, quartz, fluorite and copper pyrites. The purple fluorite in the pegmatitic streaks of the granite is suggestive of active mineral-forming agents as in ore-bearing veins. How the sulphides became disseminated through the ordinary granitoid gneiss is not clear, unless by replacement of part of the minerals of the granite when the norite with its sulphides came in contact with it. That the gneiss was present in a cold and solid state before the eruption of norite and ore, seems proved by the facts that the norite grows finer-grained against the gneiss, and that in places solid pyrrhotite rests against a clean foot wall of gneiss without evidence of infiltration.

The gneiss forms an irregular cavity or pocket for the ore mass. As the map indicates, there is a sharp bend of about 100° in the boundary of the granite where it meets the ore, and about 100 feet northwest of the angle a projection of gneiss pushes southwest, still further hemming in the sulphides. The contact of the two is not far from vertical in some places, but in others the walls of the pit show a dip of about 45° in the surface of the gneiss, as may be seen on the southwest side.

Drill holes sunk at various points give some additional information regarding the shape of the trough enclosing the ore. Drill hole No. 3 near the northwest side of the stripping shows 40 feet of ore followed by granite; No. 2 shows only 20 feet of mixed ore before granite is reached. No. 4, which is near the edge of the pit just opposite the foot of the inclined shaft, penetrated 177 feet of ore before entering granite. No. 1, which is about 100 feet southwest of No. 4, showed 250 feet of ore; and No. 5, about 160 feet northwest of No. 4, had gone through 15 feet of "capping" and 111 feet into ore at the time of my examination on 8th July.

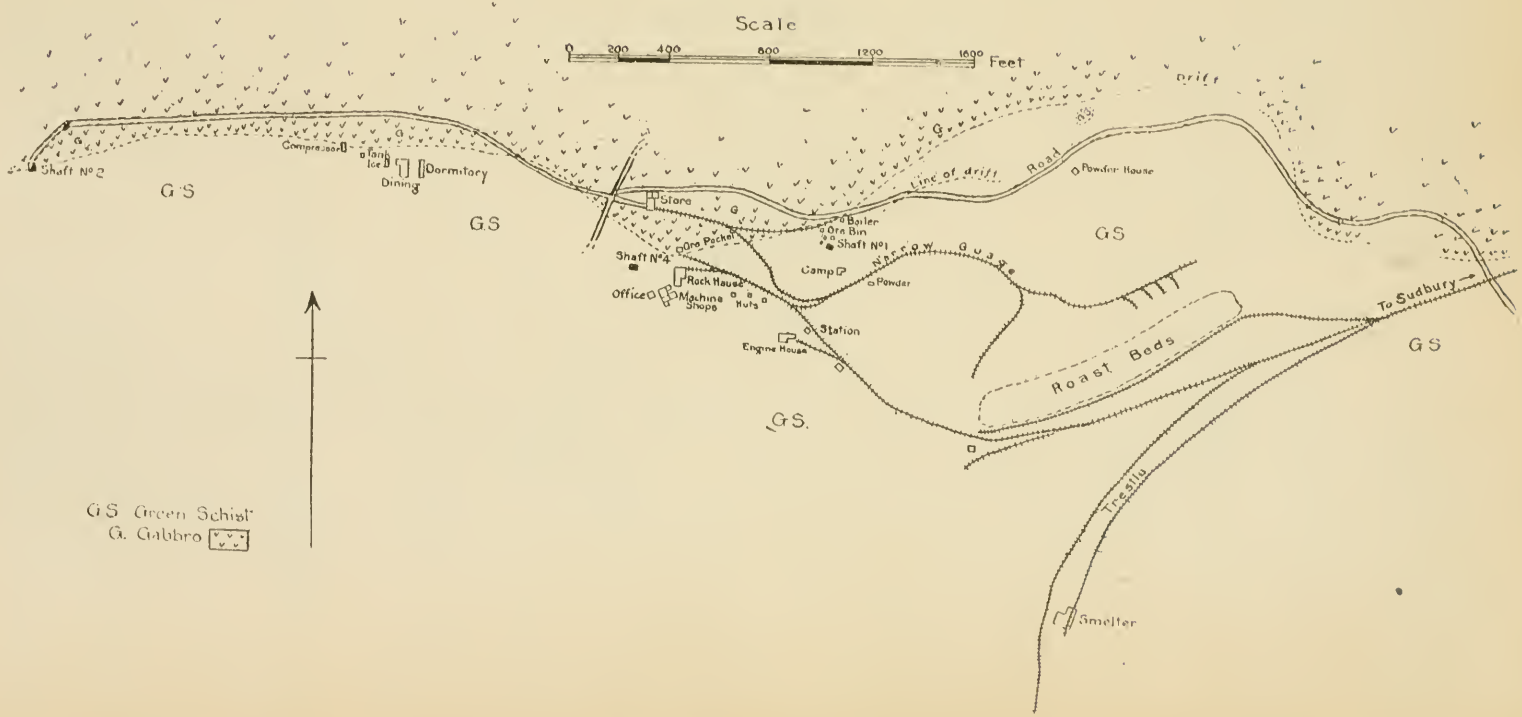
The drill holes indicate that the floor of gneiss (or granite as reported by the drillers) slopes toward the west at an average rate of about 40°. Further work will of course give much fuller information regarding the shape of the immense ore body and its relations to the adjoining rocks. There is a good probability in favor of the opinion of experienced prospectors that large ore bodies are more likely to occur at sharp angles of the granite or gneiss than elsewhere. It will be shown later that this arrangement occurs at other points.

The ore at the Creighton mine is richer than usual, containing, it is said, from 6 to 10 per cent. of nickel and copper, with much more of the former metal than of the latter.

The Gertrude Mine.

About 400 yards west of Creighton station, the gossan hill extending southwest of the mine dips down into a low swampy region and is lost. About 20 paces farther west the contact of the norite or gabbro with the Laurentian crosses the track, having a direction of 60° west of south, as seen on a small exposure of rock rising out of a muskeg. Beyond this, about 120 yards, a low ridge of gabbro is cut by the railway, but the next outcrop of rock, at the pumping station, is not gabbro, and no more is seen until the Gertrude mine is reached a little beyond mile 12 on the railway.

PLAN
OF
GERTRUDE MINE
AND
RAILWAY



From the pumping station, southwest, green schist, diorite, syenite merging into diorite or into granite, and dikes of reddish granite or felsitic rock, are encountered; and the margin of the gabbro area is evidently in the low and generally marshy ground to the northwest. As the railway runs on the whole west to the Gertrude mine, it is evident that the boundary of the norite, after it disappears under swamp and drift near the pumping station, has about the same direction, though for three-quarters of a mile it has not been traced. In the neighborhood of the Gertrude mine, however, the boundary once more comes to the surface, and has been followed for nearly a mile to the west. As the general direction of the edge of the norite or gabbro from the Creighton to the North Star mine, on the opposite side, is about 30° or 35° east of north, it will be seen that the sharp angle of the boundary of the norite at Creighton mine is simply the climax of a bay having a wide funnel-shaped margin, a matter of interest as helping to account for the great body of ore at that mine.

The norite appears first near the Gertrude, just north of the railway near the crossing of a wood road, a little east of the roast beds. It is lost again under drift for nearly a third of a mile, and when it reappears 300 yards north of the roast beds its direction has changed, running now 25° south of west to the western shaft of the Gertrude. From this point it turns 30° north of west for 200 yards, and then goes about west for nearly half a mile, beyond which it was not followed. The gabbro or norite is the same gray, rather coarse-grained, rock with some bluish quartz and scales of mica described as occurring at Creighton, but the adjoining rock to the south is not granitoid gneiss, but mainly greenstones of various kinds, partly greatly weathered diorite and partly hornblende porphyrite. Two small outcrops of granitoid rocks occur however, probably sent off from the large area of granitoid gneiss some distance to the south, representing the southwestward continuation of the granitoid gneiss at Creighton; and a small amount of greenish gray, fine-grained rock like greywacké occurs near the store.

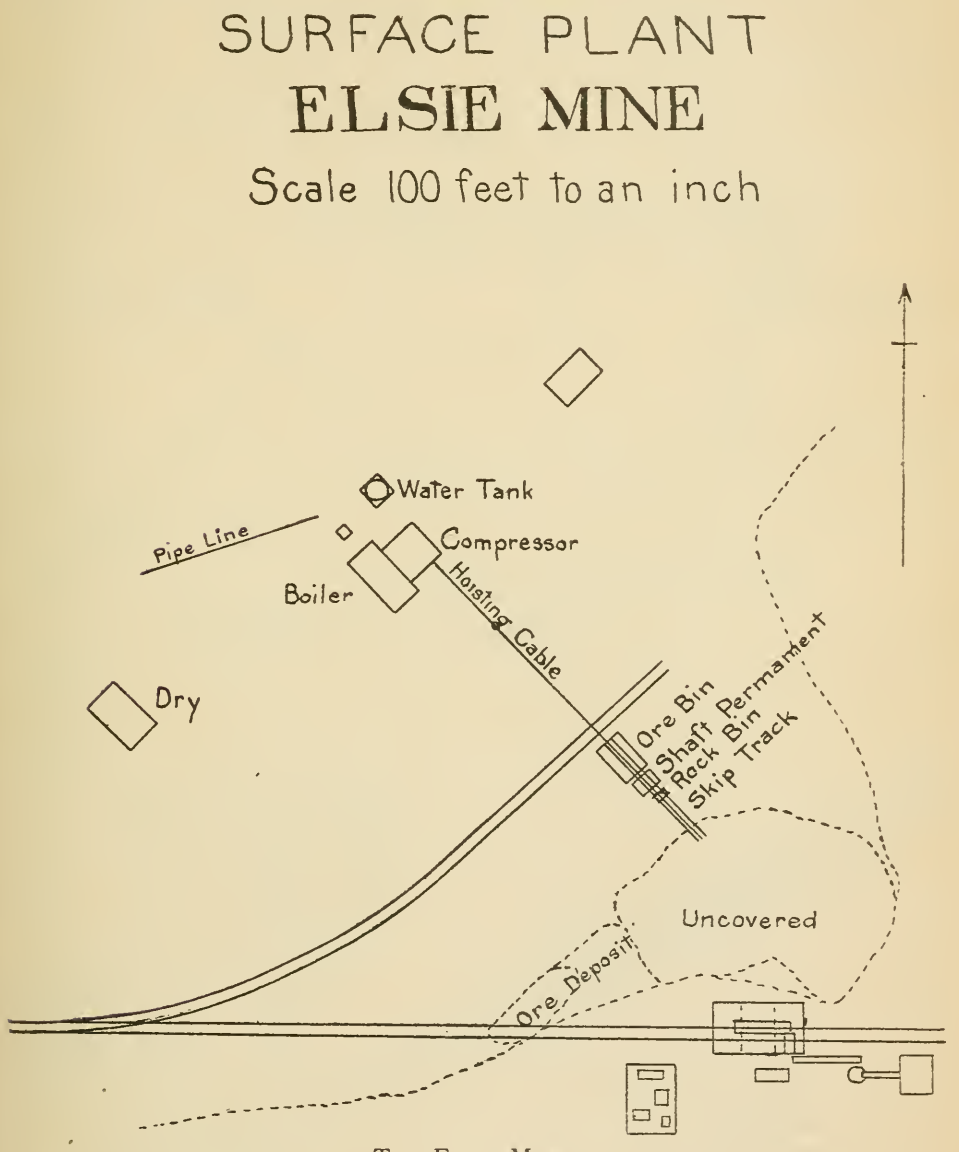
The ore is much more strung out at the Gertrude than at the Creighton, and two shafts were in operation last summer, Nos. 1 and 4, while several openings had been made along the line of contact, the whole extending for three-fifths of a mile from east to west. The gossan does not seem to be confined to the norite, extending, at some of the openings at least, over a a certain width of the greenstones to the south. In the early days of the mine the ore was almost pure pyrrhotite, but some copper pyrites is now found mixed with the magnetic pyrites.

At the eastern end of the property extensive roast beds have been laid out, the ore being transported by a narrow gauge railway running up on trestles and dumping directly on the heaps from the ore cars, a decided saving of labor over the method in use at Copper Cliff. The ore, part of which comes by rail from the Elsie mine six or seven miles to the northeast, after roasting is reduced to matte at a smelter 300 yards south of the roast beds, and then bessemerized to a high grade matte, the plant being compactly and conveniently arranged.

The North Star Mine.

Following the railway northeast from Creighton, the North Star, formerly the McCharles mine, now under option by the Mond Company, is the next mine reached on the main nickel range. It is on lot 9 in the third concession of Snider township, and at the time of our visit operations were just beginning, so that not much could be learned regarding it. The norite is of the usual coarse-grained kind, spotted with gossan and containing quartz and biotite; and the adjoining rock to the southeast is coarse porphyritic granite or granitoid gneiss; a continuation of that at Creighton, with a small greenstone band in places. The contact seems to be nearly straight, and the ore body, which lies between the two rocks, did not appear to be wide. As only eight carloads of ore had been shipped to Victoria Mines up to 11th July, the open pit was too small to give much information as to the relations of the ore body to the enclosing rocks; but it is stated that a diamond drill hole in the norite shows that the wall of granite dips at about 64° to the northwest.

The next mine to the northwest is the Lady Violet, but as no work is going on here and comparatively little is to be seen, it was not studied in detail. The norite or gabbro at this point grows finer-grained towards the neighboring rock and must be looked on as later. From the Lady Violet an offset of norite runs southeast past the Clara Bell and Lady Macdonald mines to the Copper Cliff, but this will be taken up later.

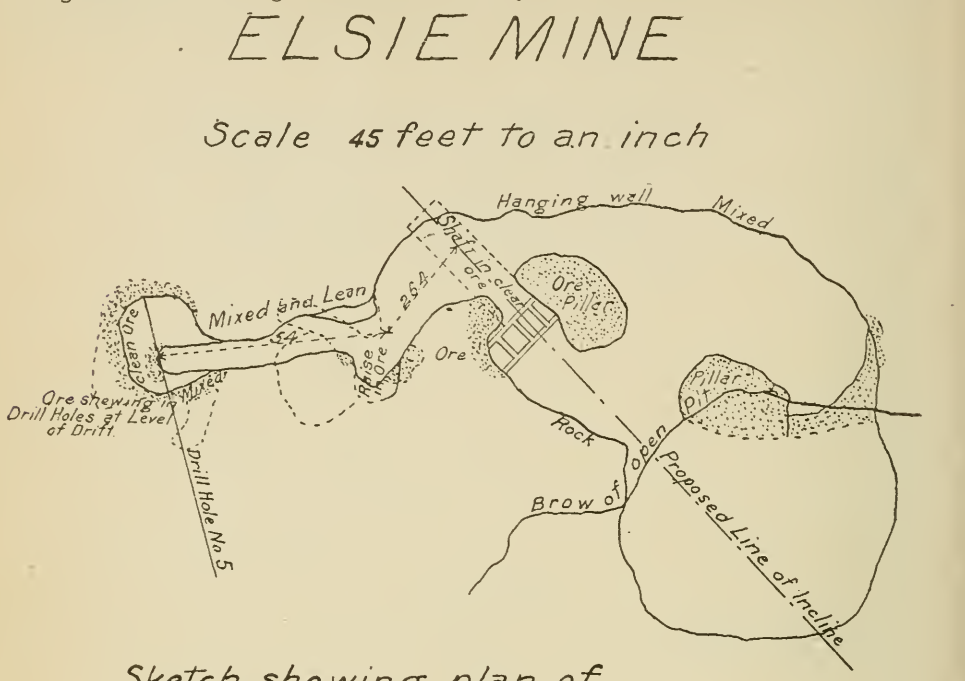


THE ELSIE MINE.

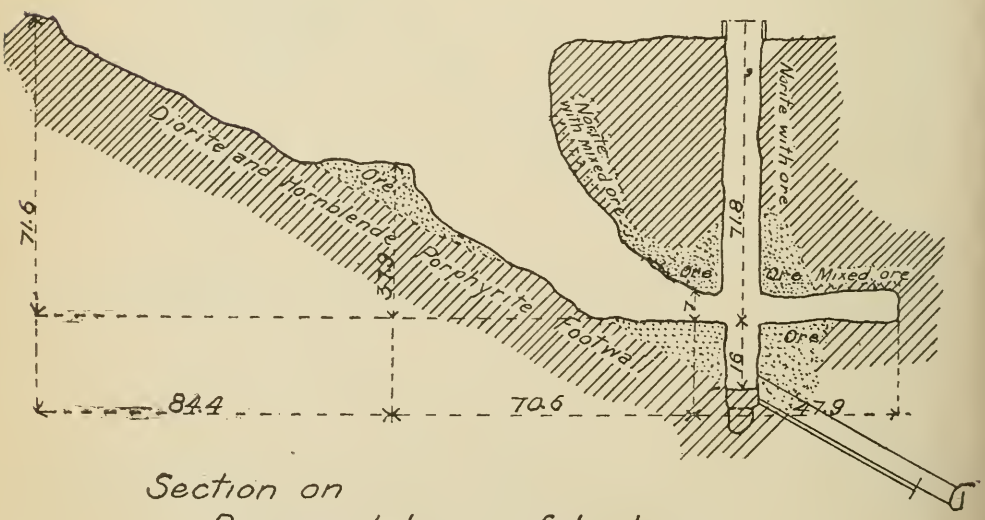
Following the boundary to the northeast the next mine is the Elsie, belonging, like the Gertrude, to the Lake Superior Power Company. A short branch line runs north to this mine from the main line of the Manitoulin and North Shore road, permitting its ore to be shipped for treatment to the Gertrude.

The norite occupies low ground which extends toward the northwest, but toward the south

and west there are steep and rugged hills, mainly of hornblende porphyrite, the highest point reaching 145 feet above the general level a hundred yards south of the rock house. Less than



Sketch shewing plan of Underground Workings



Section on Proposed Line of Incline

a quarter of a mile to the southwest one of the highest hills in the region rises to 1,100 feet above sea level. The gabbro is of the usual kind and need not be described, but the rock to

the south and east is more variable. At the open pit one finds hornblende schist and hornblende porphyrite with some long bands of greywacké on the hillside. The range of hills includes also dark-green porphyrites with very distinct white crystals of plagioclase, and some bands consisting largely of ellipsoidal masses having amygdaloidal edges, no doubt surface lava flows. In addition there are some quartzites, and toward the main line of the railway an area of rather fine-grained red granite later in age than the norite.

The plans of Captain Boss, in charge of the Elsie, show that the main ore body occupies a bay-like projection where the norite pushes sharply into the greenstones ; and that the foot-wall of greenstone or diorite dips at an angle of about 29° beneath the ore to the northwest. The ore is in irregular pockets with 20 feet of clean ore and 40 feet of mixed rock and ore in some places ; and there has been much slipping and slickensiding. With the ore one finds some quartz and calcite and also a small clay seam with iron pyrites crystallized in good cubes.

Work was begun in July, 1901, and ore was first shipped on the 26th October ; since then 25,700 tons had been shipped up to last July,

The Murray Mine.

The Murray mine was the earliest discovered in the region, having been found, it is said, in 1882, when the ore body was cut during the construction of the Canadian Pacific Railway, but was at first thought of as a copper deposit only.[19] The property, which is on the north half of lot 11 in the fifth concession of McKim, soon passed into the hands of the Vivians of Swansea, who worked it more or less continuously from 1890 until 1894, when it was shut down. Since then the smelter has been run for a time to work up the roasted ore on the heaps, but mining has not been carried on.

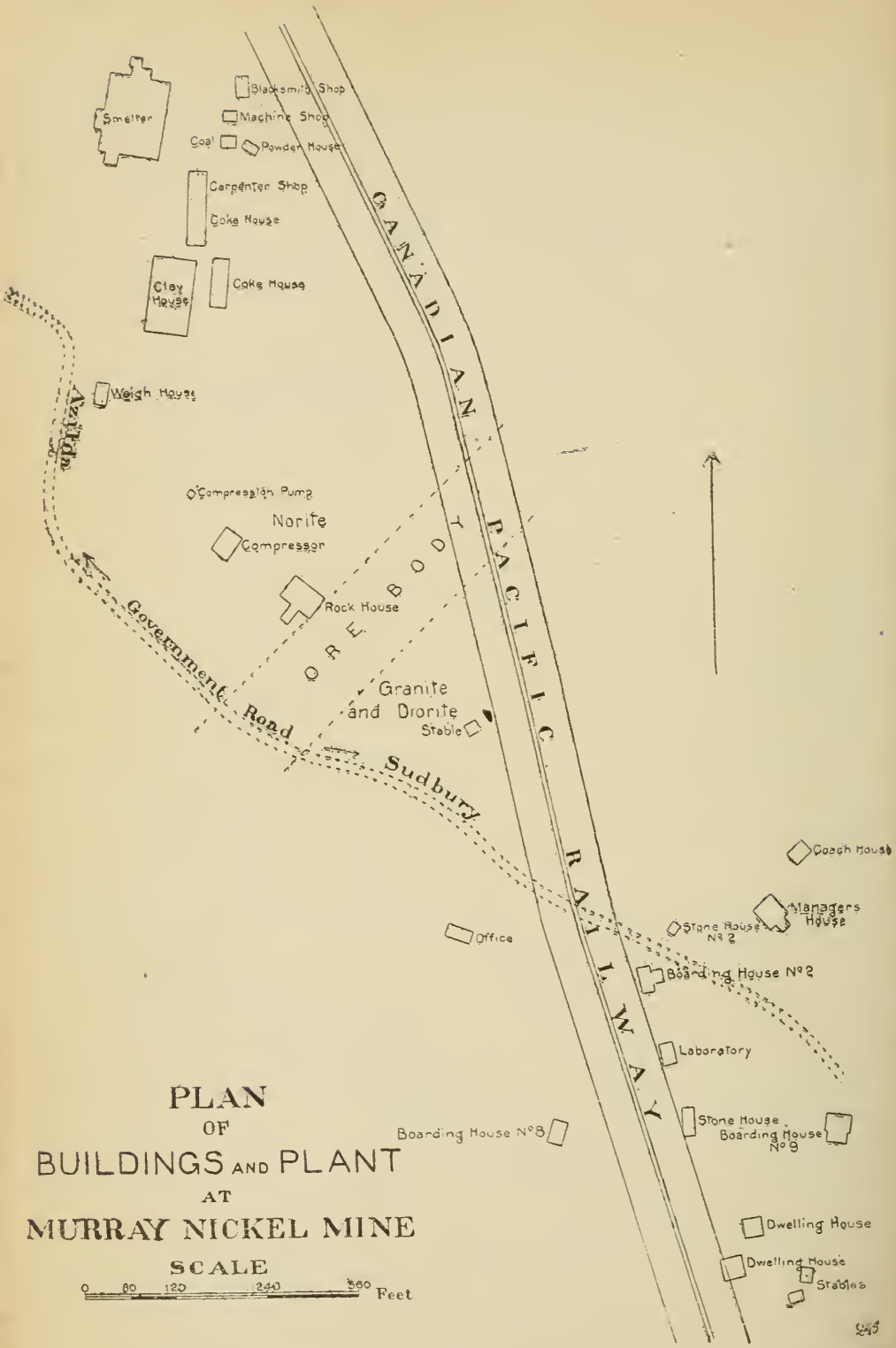
In 1893 Captain Richards stated to the Inspector of Mines that " the ore body, which possesses an average thickness of 70 feet, strikes in the direction northeast and southwest and dips northwesterly 45° from the horizontal. This agglomerated mass of nickeliferous pyrrhotite and diorite is contained by diorite walls. The foot wall at certain points, as proved by mining operations, presents the appearance of a true fissured plane upon which, at some time or other, the ore body has moved, as evidenced by the coarse flucan or attrited matter which separates the ore from the wall. In some places through the occurrence there exist large inclusions, horses or intrusions of diorite containing fragments of granite."[20] As these mines are now full of water, little can be said of the relationships of the ore body to the adjoining rocks beyond what is visible on the surface. The character of the norite mass has been elaborately described by Dr. T. L. Walker,[21] so that it is only necessary to say that it is the ordinary coarse-grained rock with bluish quartz. The contact of the norite with the adjoining rock runs about northeast from the Elsie to the Murray mine, and continues in the same direction past the latter, more or less gossan marking the boundary all the way. The hornblende, schist and porphyrite forming the foot wall at the Elsie is largely interrupted at the Murray mine by dikes from the southeast end of an area of red granite later in age than the norite, which it has penetrated in the most confused way, sometimes forming a giant breccia of norite blocks with narrow seams of granite between.

Later still than the granite are immense dikes of olivine diabase running in a direction of about 120° and cutting the ore body as well as the enclosing rock. The diabase is quite like the norite in appearance though so different in composition ; but its habit of weathering into rounded forms makes a characteristic difference.

[19] Min. Resources of Ontario, p. 24 and pp. 434-5.

[20] Bur. Mines, 1893, p. 187.

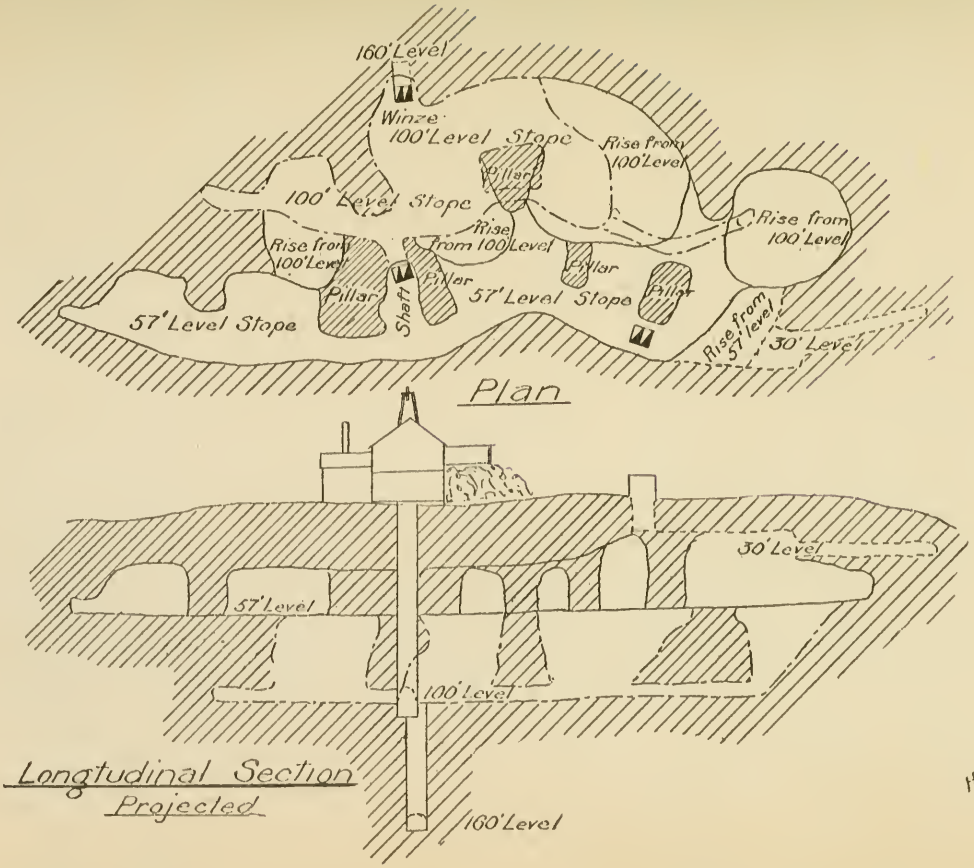
[21] Quar. Jour. Geol. Soc., Vol. LIII., pp. 47-55.



PLAN
OF
BUILDINGS AND PLANT
AT
MURRAY NICKEL MINE

SCALE

0 60 120 240 360 Feet



MURRAY MINE

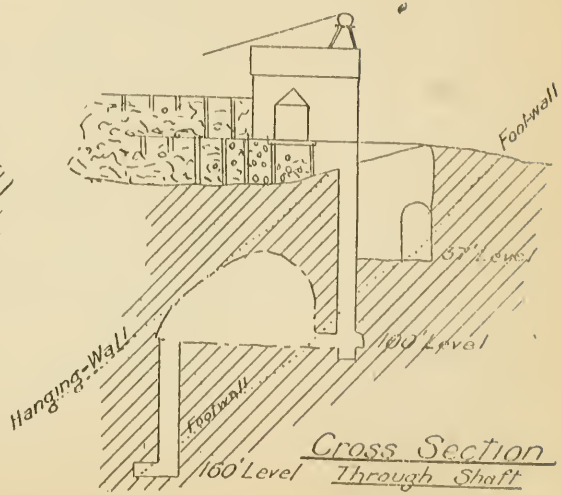
Scale

0 30 60 120 180 Feet

------ 50 Foot Level

——— 57 " "

—·—·— 100 " "



The continuation of the line of contact toward the northeast is largely covered with drift and a growth of trees, but at two or three points stripping and test pits have disclosed areas of gossan of considerable size, though less extensive than at the Murray mine.

The ore at the Murray mine was not of high grade, running in 1891 only 1.5 per cent. of nickel and .75 per cent. of copper.[22] Prof. Walker puts the average contents at 2 per cent. of nickel and .8 per cent. of copper, the sulphides making from 55 to 60 per cent. of the ore.

The Blezard and adjoining Mines.

Still further to the northeast are a series of mining properties beginning with the prospect called the Little Stobie, and including the Mount Nickel and Blezard mines. At the Little Stobie, on lot 6 in the first concession of Blezard township, work was just beginning in July, and little was to be seen except a small open pit in which some solid ore was visible. The gossan covers to some extent the green schist and hornblende porphyrite to the southeast of the margin of the norite. The latter rock has one peculiar phase in this part of the region, an apparent conglomerate or breccia of oblong fragments of somewhat paler and finer-grained material in the usual rather coarse norite.

Turning northeast from the Little Stobie to the line between lots 6 and 5 the contact is covered under low ground and woods ; but here it shows plainly again, running about from west to east until the Mount Nickel mine is reached in lot 5 of the second concession of Blezard.

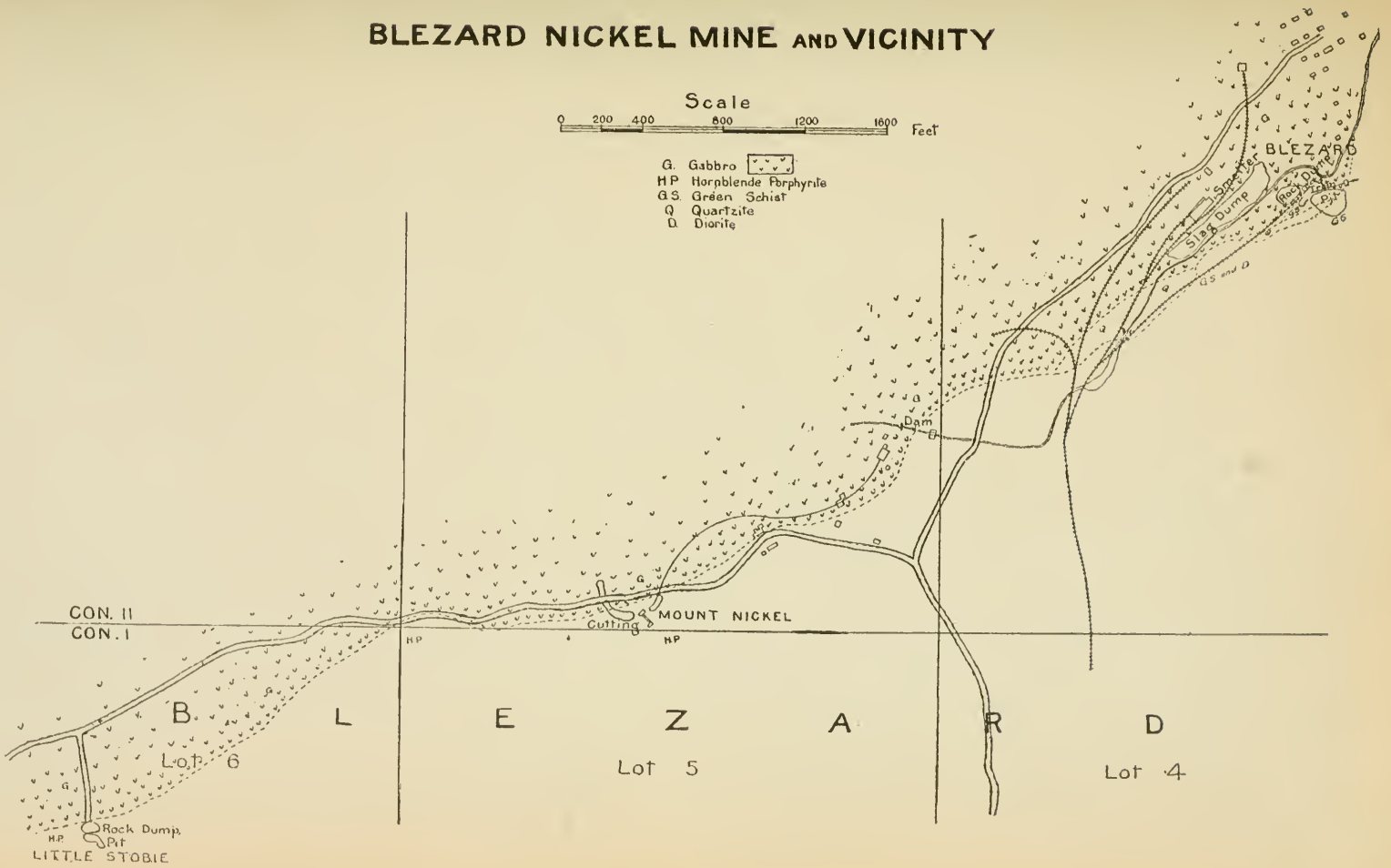
The mine, which belongs to the Great Lakes Copper Company, has been partially developed by two open cuts, the sinking of a shaft to a depth of 165 feet, and a considerable amount of drifting at the 75-foot level. This work and two diamond drills are said to prove that there is a good body of ore, dipping at about an angle of 30° toward the north, and the ore dump is of respectable size and quality. The open cuts show that the ore is largely to the south of the norite in fractured and broken greenstone, as if it had been squeezed into the fissures while molten by pressure from the north, thus forming a sort of breccia of rock fragments cemented by pyrrhotite and chalcopyrite. The appearance may be misleading however, and the sulphides may have been deposited from solution.

From the Mount Nickel mine the contact bends gently toward the northeast to the Blezard mine in lot 4 in the second concession of the township of the same name. Mr. Robert McBride, who was captain of the mine in 1892, states that it was opened in 1889 and 1890 by the Dominion Mineral Company, and shut down in 1892. At present the surface is so covered with buildings and heaps of waste rock that very little can be seen of the immediate surroundings of the ore deposit, and the large pit is of course full of water. The waste rock includes some norite or gabbro, but much more greenstone, such as hornblende porphyrite and fine-grained hornblende schist, as well as quartzite. The walls of the open pit consist mainly of green schist, including some masses of quartzite, but on the northeast side what is apparently a projection of gabbro from the large area to the north reaches the opening. The gabbro to the north is the usual coarse-grained kind with quartz and biotite, and, according to Dr. T. L. Walker, extends to the shores of Whitson lake, where it gradually changes to gneissoid granite.[23] The gabbro or norite band is flat and low, contrasting with the rough ridges of greenstone and quartzite to the southeast. As the surface is so much covered the description of the surroundings of the ore body as seen in the early days by Dr. Bell may be quoted :

"The ore consists of a body of mixed chalcopyrite and nickeliferous pyrrhotite mingled with more or less rock matter, giving the whole the appearance of a conglomerate. The general strike of the country rocks is here as elsewhere in the vicinity about northeast and southwest. The ore-bearing belt, which is associated with a dark quartz-diorite, is about 100 feet

[22] Geol. Sur. Can., 1890-1891, p. 52 F. [23] Ibid., pp. 54 and 55.

BLEZARD NICKEL MINE AND VICINITY



wide and dips northwest at an angle of 65°. It is overlaid by a massive bed of ash-colored graywacké, the weathered surfaces of which present raised reticulating lines. Immediately to the northwest of the shafts there is a dike from 30 to 50 feet wide, of dark brownish gray crystalline diabase, weathering at the surface into rounded boulder-like masses, which scale off concentrically."[24]

The open pit is said to be 60 feet deep, and the lower workings of the mine reach a depth of 172 feet; but the plans of the mine appear to have been lost, so that the shape of the ore body cannot be definitely given. It may be mentioned that the rock dump is unusually free from ore, showing that the separation of the ore from the waste rock was carried out more carefully than at other mines in the region. The ore averaged 4 per cent. nickel and 2 per cent. copper.[25]

As little or no work has been done on the Kirkwood, Cryderman and other properties along the eastward extension of the main gabbro range, the work of examination was ended at the Blezard. To the east of the Cryderman mine the range is largely buried under deep deposits of sand and gravel formed in an old lake at the margin of the retreating ice toward the end of the glacial period, so that there is little hope of tracing it to the Blue lake region.

From the account just given it is apparent that the southeastern margin of the norite or gabbro belt from the Gertrude mine to the Blezard and beyond is a practically continuous row of mines, or of prospects showing variable amounts of nickel and copper ores, the largest appearing where the norite projects bay-like into the adjoining rock to the southeast. The nature of the neighboring rock does not appear to be of importance, since ore bodies are found lying against porphyritic granitoid gneiss, quartzite or graywacké, and greenstones of various kinds. The ore bodies dip at angles of 29° to 65°, averaging about 45° to the northwest, corresponding to the surface of contact between the norite or gabbro and the adjoining rock.

Southeastern Off-Shoot of Main Norite Range.

While the series of mines thus far described includes the Creighton, the largest nickel mine now in operation in the Sudbury district, or in the world, as well as a number of others of considerable magnitude, several important deposits are found to the southeast of it along narrow dike-like off-shoots from the main range or on narrow bands of gabbro which have not been proved to have a connection with the great gabbro band to the northwest.

The best-known of these mines is the Copper Cliff, but with it are associated a series of less important deposits beginning with the Clara Bell, or No. 6, about a mile and a half to the northwest, and ending with the Evans mine about as far in a direction somewhat west of south. To understand the geographical relationship it will be well to begin at the northwest end of the series of mines where the line branches off from the main norite range near the Lady Violet mine. The accompanying geographical map shows the arrangement of the rocks in a general way, but the great extent of drift, particularly in the central part of the map, makes the relationship somewhat uncertain.

Near the Lady Violet mine, which is at the margin of the main norite belt to the southwest of the Elsie and Murray mines, there is a large projection of the nickel-bearing eruptive to the south, reaching Clara Bell lake in lot 2 of the second concession of Snider township. The offset is here from 500 to 600 feet wide, but to the southeast between Clara Bell and Lady Macdonald lakes enlarges so as to have a width of 1,600 feet, bends to the east and sends out two tongues, one to the north, the other to the southeast, where it touches the north end of the lake, with a width of only about 100 feet. It shows again on the northeast end of an island in the lake and continues on the mainland toward the southeast, until with a short interruption it reaches mine No. 2. Here there is a gap of half a mile, mainly drift-covered,

[24] Min. Res. Ont., Appendix, p. 433.

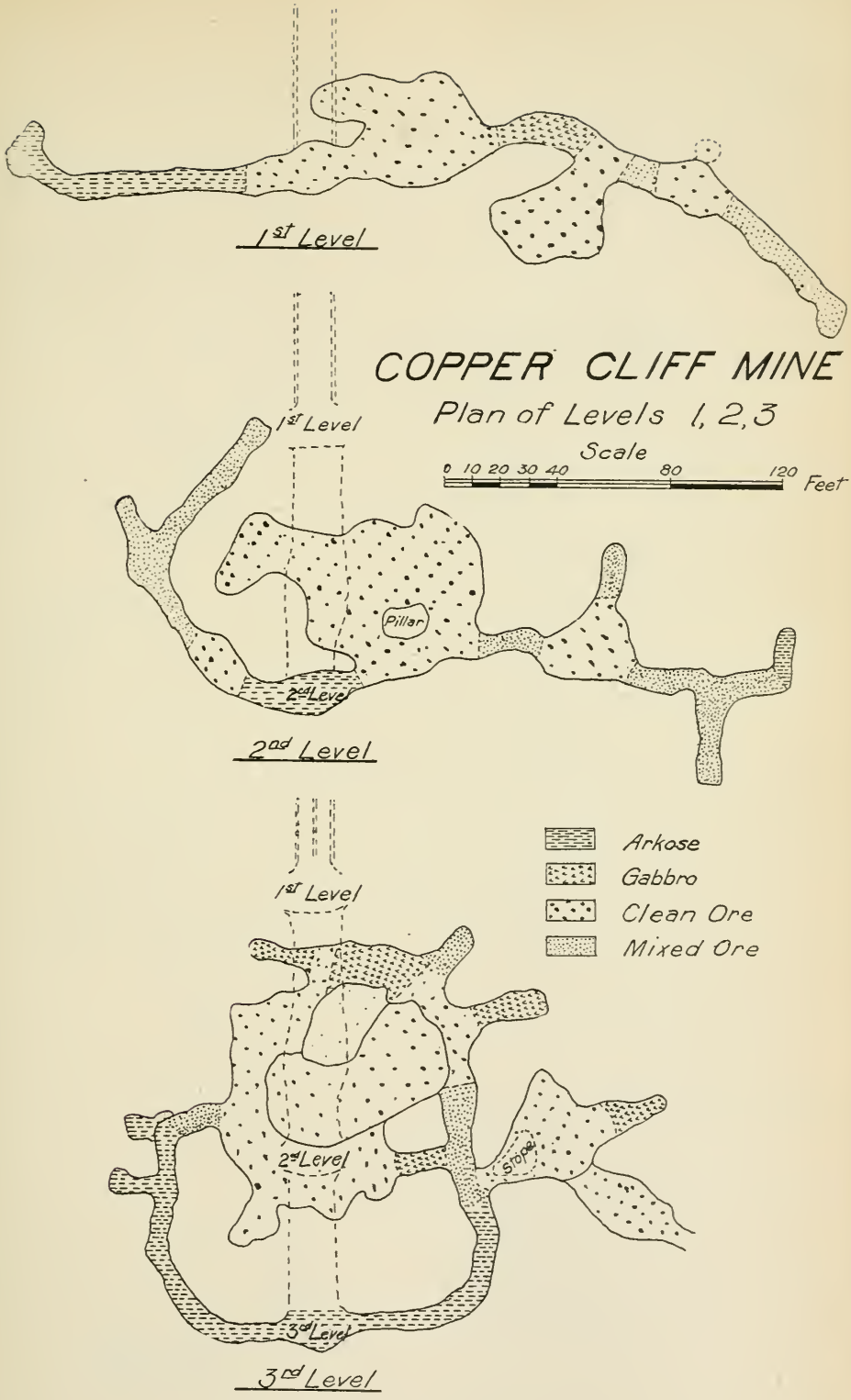
[25] Geol. Sur. Can. 1890-91, p. 52 F.

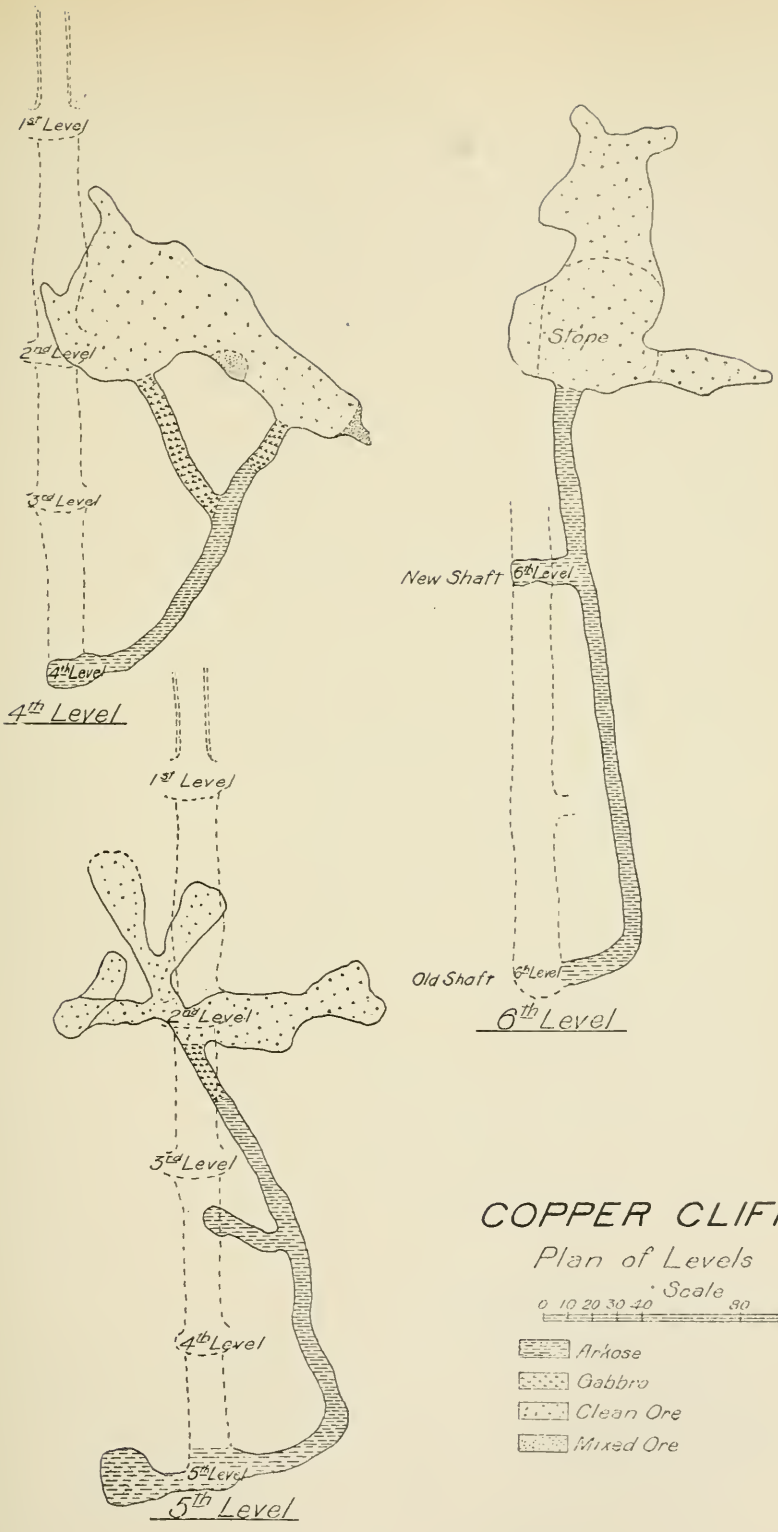
Copper Cliff nickel mine.

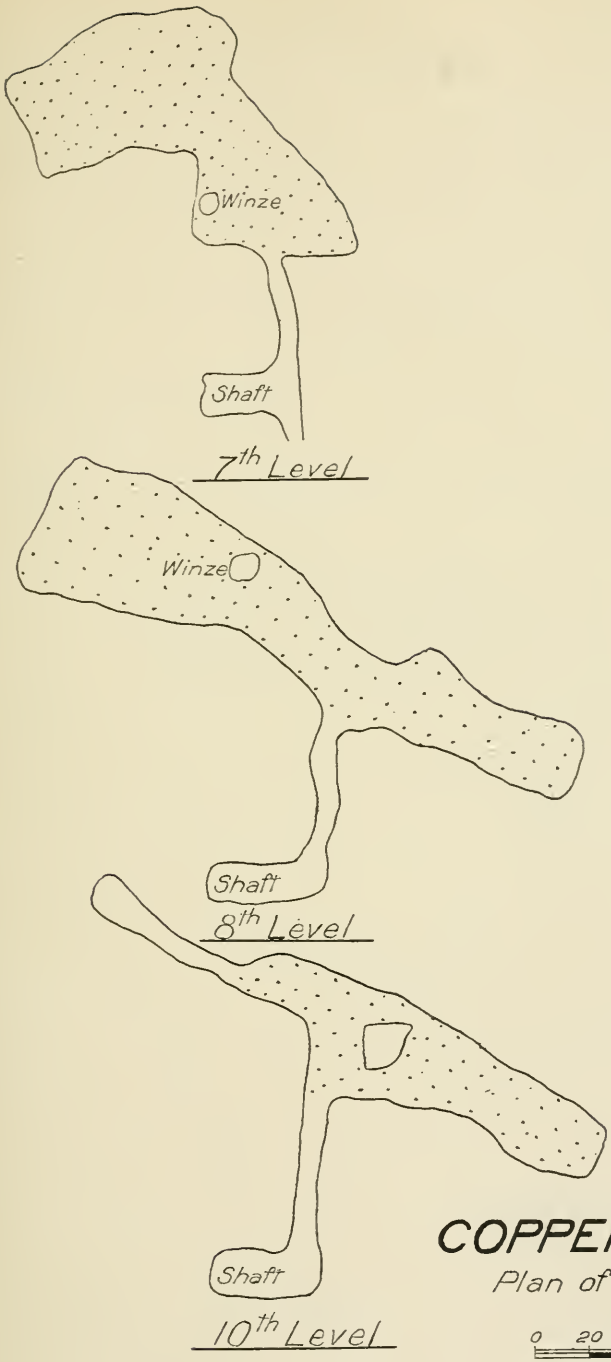
The Subury Nickel Deposits; Gossan hill, Copper Cliff.

Stobie nickel mine.

The Sudbury Nickel Deposits; Evans mine.


1st Level
COPPER CLIFF MINE
Plan of Levels 1, 2, 3
Scale
0 10 20 30 40 80 120 Feet
1st Level
Pillar
2nd Level
2nd Level
Arkose
Gabbro
Clean Ore
Mixed Ore
1st Level
2nd Level
Stope
3rd Level
3rd Level


1st Level
2nd Level
3rd Level
4th Level
4th Level
1st Level
2nd Level
3rd Level
4th Level
5th Level
5th Level
Stope
New Shaft
6th Level
Old Shaft
6th Level
6th Level
COPPER CLIFF MINE
Plan of Levels 4, 5, 6.
Scale
0 10 20 30 40 80 120 Feet
Arkose
Gabbro
Clean Ore
Mixed Ore

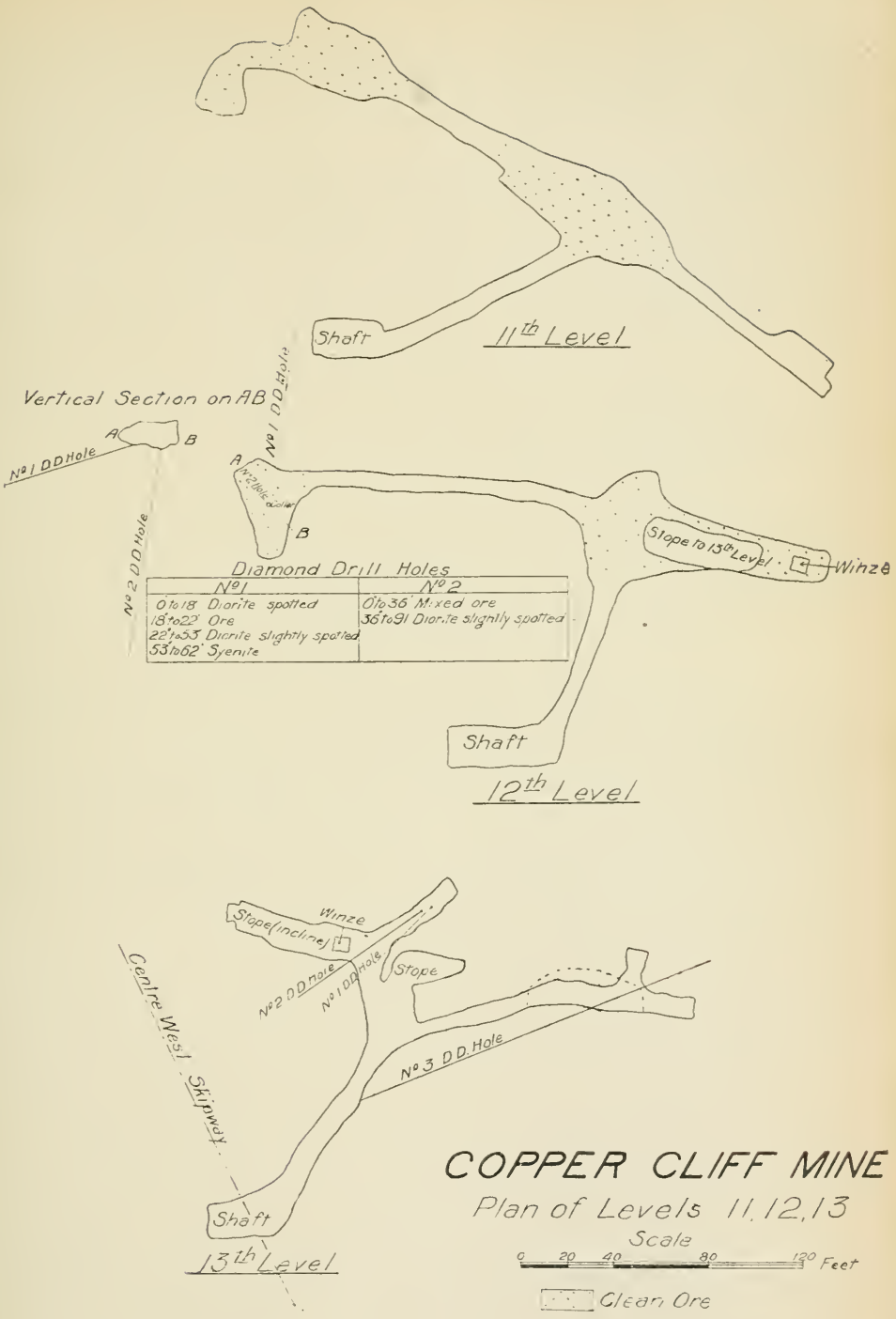


COPPER CLIFF MINE

Plan of Levels 7, 8, 10

Scale 0 20 40 80 120 Feet

Clean Ore


Shaft
11th Level
Vertical Section on AB
No 1 DD Hole
A
B
No 1 DD Hole
No 2 DD Hole
No 2 Hole outlier
Diamond Drill Holes
No 1
0 to 18 Diorite spotted
18 to 22 Ore
22 to 53 Diorite slightly spotted
53 to 62 Syenite
No 2
0 to 36 Mixed ore
36 to 91 Diorite slightly spotted
Slope to 13th Level
Winze
Shaft
12th Level
Winze
Stope (incline)
No 2 DD Hole
No 1 DD Hole
Stope
No 3 DD Hole
Centre West Skipway
Shaft
13th Level
COPPER CLIFF MINE
Plan of Levels 11, 12, 13
Scale
0 20 40 80 120 Feet
Clean Ore

before the gossan hill of the Copper Cliff mine rises to the south. A small patch of gabbro near the stream less than 100 yards north of the hill is the only indication of a connection between No. 2 and the old mine. It may be that faulting has taken place between them, since the Copper Cliff is much too far west to be in a line continuing the direction of the norite band ending at No. 2.

From the Copper Cliff to the next outcrop, about 700 yards to the southwest, stratified clay covers the bed rock ; but here the band of gabbro has become very narrow and runs a little west of south with some interruptions for about 600 yards, when it passes once more beneath the clay. Two-thirds of a mile farther south, beyond a broad expanse of marsh and clay the last outcrop is found, the low gossan hill of the Evans mine. It is possible, but not probable, that the last mentioned outcrop is connected with a range of gabbro rising as a ridge to the southeast between the Copper Cliff plain and Kelly lake.

When the gabbro juts off from the main range it passes between greenstones and granite as if along a line of weakness. The greenstones rise to the northeast as steep and lofty hills consisting of hornblende schist, beautiful hornblende porphyrite with large cleavage planes of the mineral, and diorite, enclosing sometimes small areas of graywacké or quartzite.

The gabbro appears to be older than the greenstones, and the ore bodies occur against them or penetrating them to some extent, and not in the edge of the granite to the southwest. The gabbro is frequently of the usual coarse-grained quartzose kind described before, but parts of it contain small, greenish, fine-grained inclusions of what appears to be an earlier gabbro ; and occasionally there is a rough banding of coarser and finer-grained varieties, and some admixture of schistose rocks, probably enclosed at the time of eruption.

On the southwest side of the gabbro the relationships are partly concealed by Clara Bell lake, whose outlet has been dammed, raising the water and flooding the low ground ; but apparently the contact all along is with porphyritic granite, often sheared into granitoid gneiss, except at a point to the southeast of the lake, where green schist with conglomerate is found. The granitoid gneiss is apparently later in age at this point, sending dikes into it and carrying off fragments, though this is not altogether certain, for on the edge of the lake farther to the west a finer-grained later granite shows itself, which may have penetrated along the line of contact.

The three mines, Clara Bell (or No. 6), No. 4, and Lady Macdonald (or No. 5), are all at the northeastern edge of the gabbro against the greenstones. The Clara Bell mine, about 150 paces north of the lake of the same name, lies at the edge of "patchy" gabbro, gossan-covered, which sinks into a swamp a little to the west. No work has been carried on here lately, but on the dump one finds gabbro and chloritic and hornblendic schists, with quite a number of minerals, including besides pyrrhotite and chalcopyrite, quartz and calcite, the latter showing crystals with the prism and a blunt rhombohedron, dolomite weathering rusty, and actinolite often in blades several inches long. A pocket of about five tons of magnetite was found completely enclosed in the sulphides in this mine.

At No. 4 extensive open pits have been excavated at the eastern edge of the northern tongue, but the old dumps show no great variation from the last mine. Lady Macdonald (or No. 5) mine is at the edge of the similarly named lake, which, like Clara Bell, has been greatly enlarged by a dam at its outlet, so as to form a reservoir for the water supply of the smelter and other purposes. This was the first of the three to be worked.

An open pit near the lake is at the margin of gabbro and the greenstones, and only a short distance north of the granitoid gneiss on the other side of the narrow, dike-like band which here turns off to the southwest across the lake. There are crush-conglomerates or breccias between the granitoid gneiss and the gabbro, and so far as one can judge on the gossan-covered surface, an irregular dike of granite penetrates to the edge of the pit. Hornblende schist, hornblende porphyrite, a little re-crystallized arkose and red pegmatite occur on the dump,

and in addition to minerals like those at Clara Bell a few scales of graphite were found in fragments of a gray rock.

The northeast end of an island in Lady Macdonald lake shows the contact of granite and gabbro, the latter thickly covered with gossan; and on the shore of a bay to the southeast the gabbro band is found again with greenstone to the northeast, and porphyritic granitoid gneiss to the southwest. The greenstone is mainly schistose, hornblendic or chloritic, but is largely mixed with strips and belts of distinctly stratified graywacké, and often on the eastern margin cut by small elongated outcrops of gabbro or of hornblende porphyrite, which, however, do not carry sulphides, and appear to have no connection with the nickel-bearing norite or gabbro.

As the gossan-covered band is followed to the southeast various small open pits disclose more or less ore, but before mine No. 2 is reached the band turns slightly to the south and is lost under drift for a time. The next outcrop is more to the east, and seems cut off from the band hitherto followed by a dike of greatly weathered diabase ten paces wide, crossing from east to west.

About 150 yards after leaving the bay the band is entirely enclosed in the granitoid gneiss, which seems later than the green schist, since it has carried off strips of it, but older than the gabbro, which becomes fine-grained towards the contact. It is, however, interesting to find a dike ten feet wide of much finer-grained gray granite, not porphyritic or gneissoid, penetrating the gabbro as if an off-shoot of the main granite. It is probably, however, of later age and unconnected with the granitoid gneiss.

The best exposed surface is close to the immense open pit, which is about 230 feet long from southeast to northwest, and about half as broad, and occupies nearly the whole width of the band of gabbro, since porphyritic granitoid gneiss comes within a few feet of the southwest side of the pit and forms its wall on the northwest side. The fringe of rusty gabbro on the sides grows very fine-grained against the gneiss, and is evidently younger than it, and it is clear that the majority of the contents of the dike-like band at this point consisted of the nearly pure sulphides, now mined out in the open pit to the depth of 278 feet, and known by the results of sinking a shaft to go 80 feet deeper, or 358 feet in all.

There have been extensive disturbances in the region since the granitoid gneiss was consolidated, shown by the large amount of faulting and shearing to be seen, often forming crush-conglomerates with large blocks of the gneiss having the schistose cleavage variously arranged in a matrix of fine-grained granitic material. Similar evidence of faulting is found in well stratified graywacké to the east of the new smelter.

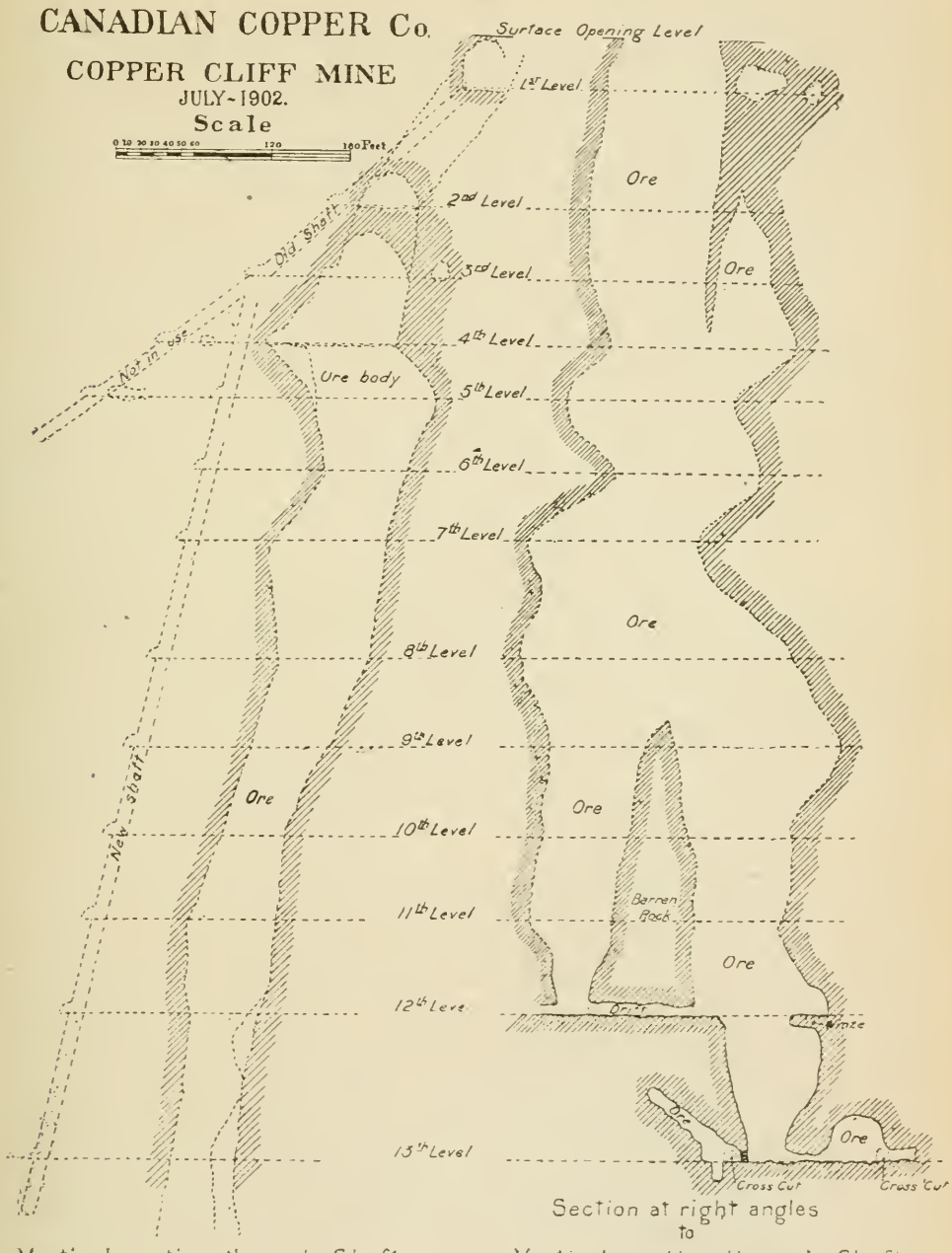
THE COPPER CLIFF MINE.

The Copper Cliff mine in lot 12, in the second concession of the township of McKim, is the richest and has been one of the most productive nickel mines in the Sudbury district. As the name suggests, it was taken up as a copper mine before the nickel contents of the ore had been recognised, and it is stated that the upper part of the ore body was considerably enriched in copper as compared with the ore at greater depths, the only known example of the kind in the district.

The mine was found soon after the Murray mine in 1882, and since it passed into the hands of the Canadian Copper Company in 1886 it has been more or less steadily worked, until now it has got below the 13th level, at a depth of about 1,000 feet from the surface. During the working of this mine much information has been acquired regarding the form and associations of the ore body, and I am under great obligations to the officers of the International Nickel Company, the present owners of the properties formerly belonging to the Canadian Copper Company, for the large amount of information they have imparted and for permission to copy their surface and underground plans.

In the preparation of the plans and diagrams of this and other mines much assistance has

been given by Mr. W. E. H. Carter, whose familiarity with the mines as Inspector has been of the greatest service. The working out of the plans has been done largely by Mr. D. G. Boyd of the Bureau of Mines.



With the exception of a small patch of rusty gabbro near the creek the nickel belt is covered with drift or other rock between No. 2 and the Copper Cliff mine, where it rises as a steep gossan-covered hill, nearly 600 feet long and 200 wide, running at first north and south,

but bending to the southeast at the shaft house where the ore body originally cropped out at the surface. Toward the west and southwest the hill falls steeply beneath the flat clay plain, and the nearest rocks are a quarter of a mile away, rising as a lofty hill of pink granitoid gneiss with a fringe of crush conglomerate and greenstone along the base. To the south some low hills of well stratified graywacké or quartzite rise through the clay; and to the east it joins a sharp little hill of pink quartzite, or rather arkose, often spoken of as syenite. It resembles felsite somewhat in appearance, but is probably sedimentary and related to the wide-spread areas of partially re-crystallized arkose in the region. This arkose is mixed with the grayer rock referred to in this paper as greywacké, though it has phases like quartzite and also like slate. A little to the north near the main street of the village is a low hill of greywacké conglomerate with pebbles which seem to have been rounded by water.

The gabbro of the hill at the mine is so gossan-covered as to be hard to study. It is crossed by two small diabase dykes, and just beyond the contact between gabbro and arkose, but in the latter rock, are two dikes of reddish-gray medium-grained granite, each six or eight feet wide, but traceable only for a short distance. On weathered surfaces they are hardly distinguishable from the arkose, and in appearance they are like the granite dike near mine No. 2.

The large rock dump at the mine contains a variety of materials, the most common being rather fine-grained gabbro with a little quartz, commonly called diorite, but there seem to be all gradations from this to a pale gray biotite granite merging into red granite. The gabbro has coarse varieties with some biotite and also hornblende crystals, and sometimes pegmatitic parts with large gray feldspar crystals, generally striated, almost to the exclusion of other minerals. There are also felsitic looking rocks, gray to red, arkoses as shown by thin sections. Finally there are numerous diabases, evidently from dikes, occasionally the whole width being shown in the blocks, the margin being finer-grained than the centre. The diabases are not porphyritic as at the Creighton mine. All of the rocks mentioned may be found more or less charged with sulphides, and there are brecciated masses of rock cemented with sulphides. Among minerals, in addition to those belonging to the ore and rocks, there are calcite, quartz, and small amounts of galena.

A dike of diabase is said to have been followed down from the third level to the thirteenth, part of the dike matter containing ore, and having a margin of calcite on one side and of quartz with some ore on the other. The largest dike encountered is said to be very fine-grained and black, and to be twenty-five feet wide.

Cores from diamond drill holes below the thirteenth level show, in addition to ore and the usual rocks, diabase dikes and a dike of medium-grained biotite granite.

As shown by the sections given, prepared from the plans of the levels in the mine with aid from Captain Lawson, who has charge of the underground workings, the ore body is roughly cylindrical, narrowing and widening several times and broken by a large horse of barren rock, beginning between the ninth and tenth levels. Many thanks are due to the mine authorities, and especially to Captain Lawson, for this instructive section of the deepest mine in Ontario, a mine that is still producing rich ore from a depth of 937 feet.

One curious feature of the later development of the mine is the finding of an odorless gas which may be lit with a candle in drill holes through ore at the thirteenth level.

The chimney-like ore body has a width of from 50 to 90 feet in the section through the shaft, which is inclined about 77½° toward the northeast, and from 75 to more than 200 feet in the section at right angles to it.

In the Copper Cliff, as in No. 2, the amount of ore seems greatly disproportionate to the size of the band of norite with which it is connected, and a certain quantity of the ore, being associated with quartz and calcite, must be of later deposition than the ore enclosed in the norite. The fact that two slips are rather marked features at the mine may indicate fractures

and fissures in which water currents could circulate, and deposit there materials dissolved out of previous ore masses belonging to the original consolidation after the norite reached its present position.

It is stated that when the ore body in the Copper Cliff is narrow it is richer in copper, and when it widens it becomes richer in nickel.

About 700 yards southwest of the Copper Cliff a small band of gossan-covered gabbro rises out of a swamp and runs southward towards the Orford refinery. The gabbro associated with the ore has the customary pitted surface where spots of pyrrhotite have weathered out, and runs with interruptions between well-stratified graywacké and a steep hill of pink felsitic looking arkose. Several pits have been opened upon the band, including No. 1, near the water tank of the refinery, from which some thousands of tons of rich ore were taken, but all are now filled with water so that not much more than the surface can be seen. The amount of gabbro as compared with ore seems to be reduced to a minimum, or even to vanish altogether in a confused intermingling of blocks of graywacké with thin seams of the eruptive.

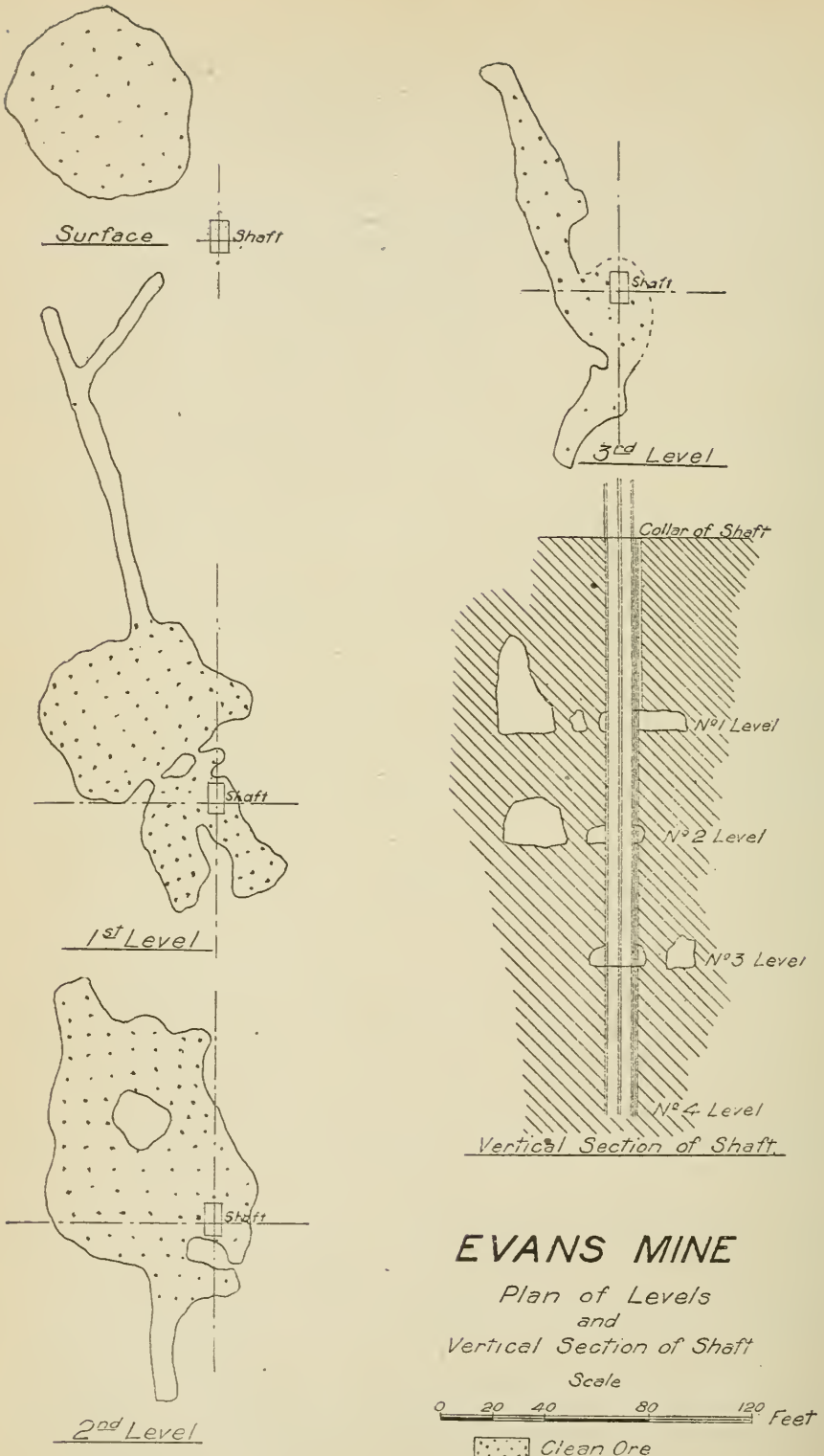
At the most southerly large open pit hornblende porphyrite shows itself in considerable amounts, and true norite or gabbro can scarcely be discovered at all. It is as though almos. only ore, out of the original mixture of ore and norite, had been forced into this narrow fissuret At the widest the band scarcely goes beyond 50 feet, and in the long extension toward the Orford club house it narrows down to eight or ten feet. Several dikes of diabase cut the hill of arkose and approach the open pits, one or two of them actually crossing the norite band, but it is doubtful whether they have had any effect on the ore bodies.

THE EVANS MINE.

After an interval of about two-thirds of a mile of swamp and clay flats with no solid rock but a few low mounds of graywacké, the small gossan hill of the Evans mine rises gently above the clay, but is now mainly covered by the rock house and rock dumps, except at the two open pits filled with water. There is little to be learned at present from the surface outcrops, though the large rock dump shows a considerable variety of types, including gabbro, diabase (probably from dikes), graywacké and various products of weathering, such as actinolite rock. Much slickensiding was noticed on the blocks of rock.

The mine was worked by open pits to a depth of about 160 feet, and below this by level to the depth in all of about 250 feet.

The question as to whether the Evans outcrop should be connected with the narrow band of ore-bearing gabbro two-thirds of a mile to the north near the Orford refinery, or with the ridge of gabbro rising only 400 yards to the southwest near Kelly lake, is one of considerable interest and should be briefly discussed. The connection with the nearer gabbro area seems at first the more natural, but there are reasons for deciding in favor of the other theory. In the first place, all the important ore deposits in the Copper Cliff region are on what may be considered one curved belt of norite or gabbro projecting from the main range and everywhere gossan-covered, indicating the presence of sulphides. On the other hand, the band of gabbro to the southeast of the Evans mine differs in character from the typical nickel-bearing norite. It resists weathering and rises as sharp ridges of hills, while the nickel-bearing norite generally has only low relief ; it is never gossan-covered at its junction with other rocks, and only very small deposits of nickel ore have been found in it, and then only at a considerable distance from the margin. The gabbro belt near Kelly lake is narrow, averaging only about half a mile in width, but it connects about six miles to the northeast with a larger mass several square miles in area, just east of Sudbury. The narrow band and the main body rise through the sedimentary rocks in what seems a laccolithic way, tilting the slaty graywackés up on their flanks till they are nearly vertical or even slightly turned the other way ; and this turned-up edge of graywacké runs right on between the gabbro ridge and the Evans mine as if quite undisturbed.


Surface
Shaft
Shaft
1st Level
Shaft
2nd Level
Shaft
3rd Level
Collar of Shaft
N°1 Level
N°2 Level
N°3 Level
N°4 Level
Vertical Section of Shaft
EVANS MINE
Plan of Levels
and
Vertical Section of Shaft
Scale
0 20 40 80 120 Feet
Clean Ore

Still another point has a bearing on the question. The main range uniformly blends to the northwest into micropegmatite and granite, while the Sudbury gabbro mass with its prolongation to the southwest has no such peculiarity. Toward the center of the southwest ridge and also in the main mass there are segregations of coarsely crystalline white feldspar, mostly plagioclase, and also quartz, the two frequently having a pegmatitic intergrowth; but there is nothing at all suggesting the change to granite. The Kelly lake band of gabbro, then, is of quite different characters from the usual nickel-bearing gabbro or norite, and having no ore bodies itself would be unlikely to send off from its flank such a large mass of ore as the Evans mine.

If the Evans ore body is connected with the band to the north, why should there be a gap of two-thirds of a mile between it and the next outcrop? This is not easy to answer, but one may suggest that connecting links are buried under the clay flats between; or the explanation current among prospectors may be accepted, that there is a subterranean connection between the outcrops "capped over" at certain points. If the latter is the case and the ore-bearing connection is not at too great a depth there should be magnetic disturbances between two outcrops, but this has not yet been demonstrated.

The evidence points somewhat toward a real connection of these rich chimneys of nickel ore among themselves by tortuous channels which have not always reached the surface, the chimneys representing weak points in the overlying rock where the more fluid part of the mixture of rock and ore, which would of course be the sulphides, could be forced upwards, sometimes as a column more than a thousand feet in height, as at the Copper Cliff. It is possible, however, that the connecting channel lay *above* the present level, and that the heavier ore descended where opportunity offered. Since then the upper canal may have been removed, along with the thousands of feet of rock which have undoubtedly been planed off since Archæan times.

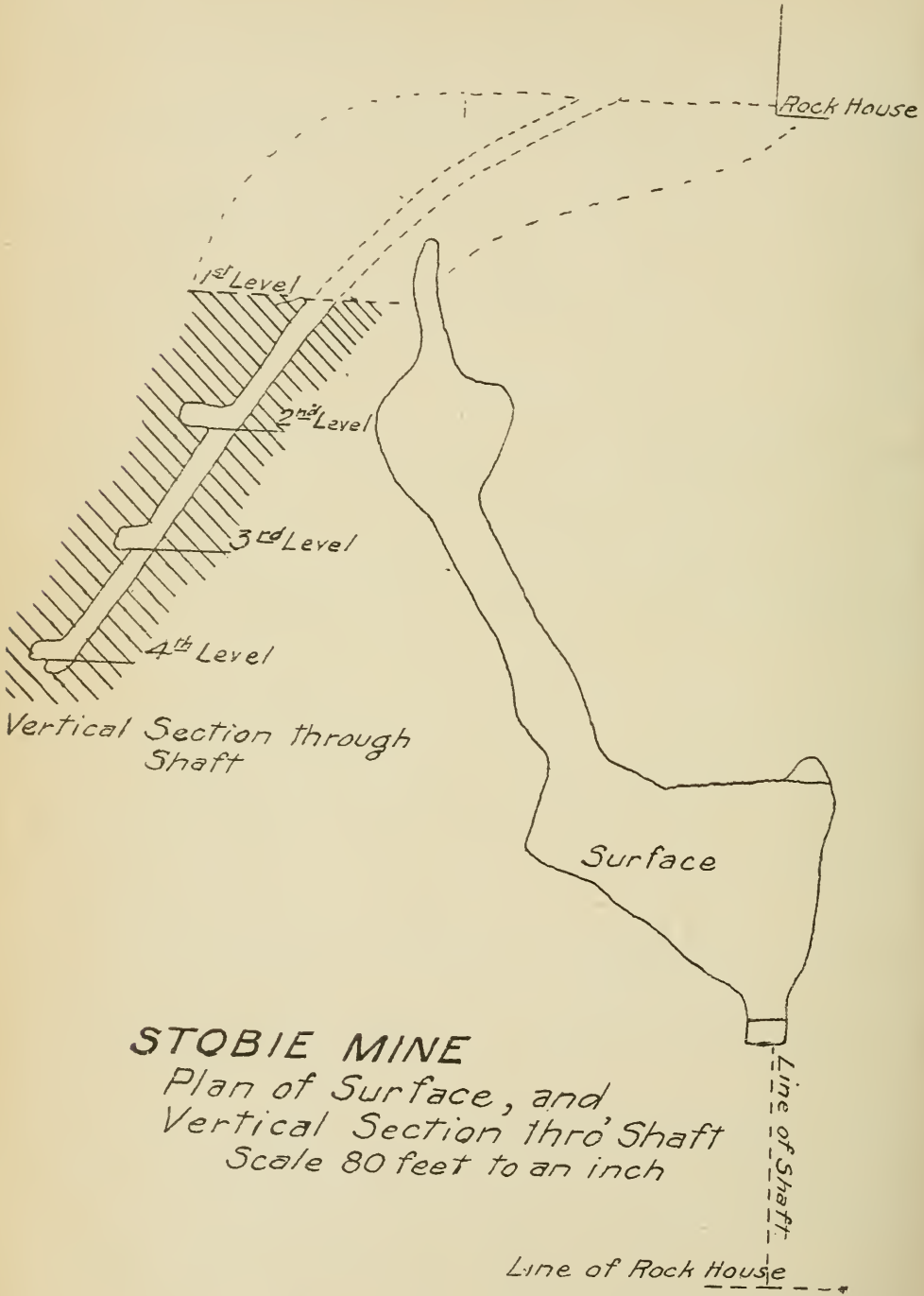
THE STOBIE AND FROOD MINES.

About four miles northeast of Lady Macdonald mine, belonging to the group of mines just described, another ore deposit of importance occurs, the Frood, or No. 3 mine according to the later method of nomenclature. Less than two miles farther to the northeast is the Stobie mine, at one time the most productive in the district, though its ore was of comparatively low grade. These two mines are connected by a band of gossan-covered gabbro, which however has some breaks before the Stobie is actually reached, and the two mines will be taken up together.

Beginning at the southwest the rusty surface of gabbro is first encountered about 1100 yards from the Frood as a band indistinctly separated from the adjoining rock, which is graywacké and schist, often containing large pseudomorphs after staurolite. The band rises as a ridge which is generally red-brown from the gossan, but is cut off by a narrow interruption of quartzite 600 yards southwest of the mine. The rusty gabbro quickly rises again and widens greatly, until near the mine it reaches its greatest width of about 200 yards. In this part it has quartzite and graywacké to the southeast, striking 40°, about the direction of the norite band itself. On the northwest the rocks adjoining it are more varied, but the rock in immediate contact is generally diorite. Beyond these rocks, which rise against each side of the gabbro, there are broad swamps. To the north of the mine the gabbro hill dips down quickly into swampy ground, and is presently cut off by quartzite and green schist. Beyond the swamp to the northwest at about 200 yards distance a chain of granite hills runs parallel. The granite is rather fine-grained, flesh colored, and appears to be a part of the later granite mass observed near the Murray mine two miles to the west.

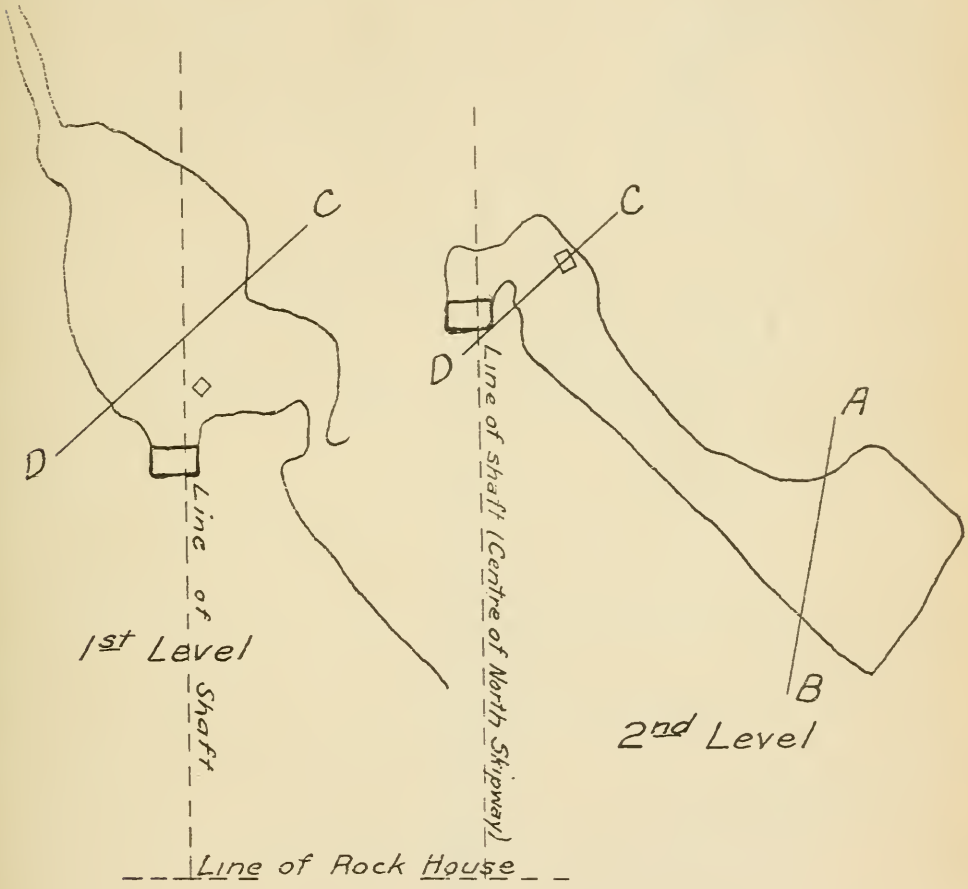
At the Frood mine (No. 3) the gabbro rises about 90 feet above the low ground around, showing an eruptive contact with the graywacké and quartzite on its flanks, but the hill is so

covered with gossan that boundaries are not easily fixed. The large rock dump shows chiefly gabbro and graywacké, but also some blocks of talc and of actinolite. The ore is irregular and



greatly mixed with rock matter, and masses of the rock are enclosed in ore as a matrix; among others a pebble of white quartzite being found thus enclosed. The Frood mine belong-

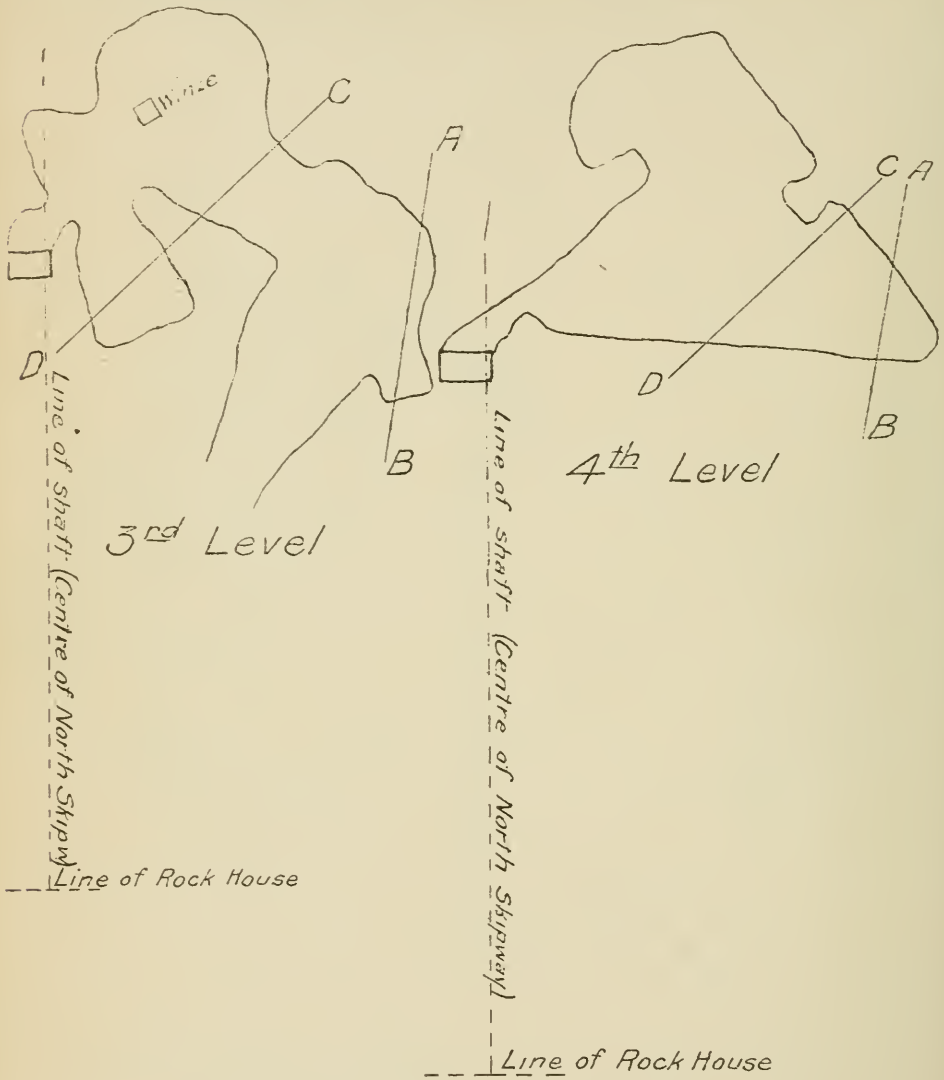
ing to the International Nickel Company is on the eastern edge of the gabbro and has been opened up by large pit as well as underground workings. Openings have been made by another company on the northwestern side of the hill at the margin of the graywacké, but only on a small scale ; and here the stakes set at regular intervals over the ground shew that a magnetic survey has been carried out, but no information has reached me as to the results.



STOBIE MINE
Plan of Levels 1 and 2.
Scale 80 feet to an inch.

After a short gap to the north of the Frood, where green schist intervenes, a narrow band of gabbro or of gossan-covered surface runs once more towards the northeast. About half way to the Stobie mine it becomes discontinuous, but patches of gossan and fine-grained gabbro continue to the northeast, entangled in graywacké conglomerate and greenstone. The gossan band is bordered by graywacké or green schist which however soon sinks beneath swampy

ground on each side. The contact of these two rocks is very broken, and the conglomerate is due probably to crushing and shearing along this line, which served as a plane of weakness through which the nickel-bearing eruptive could intermittently penetrate.

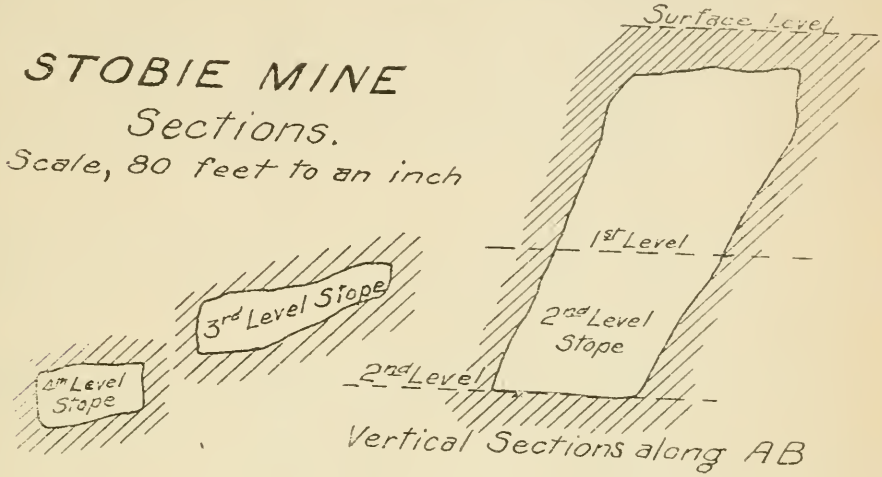


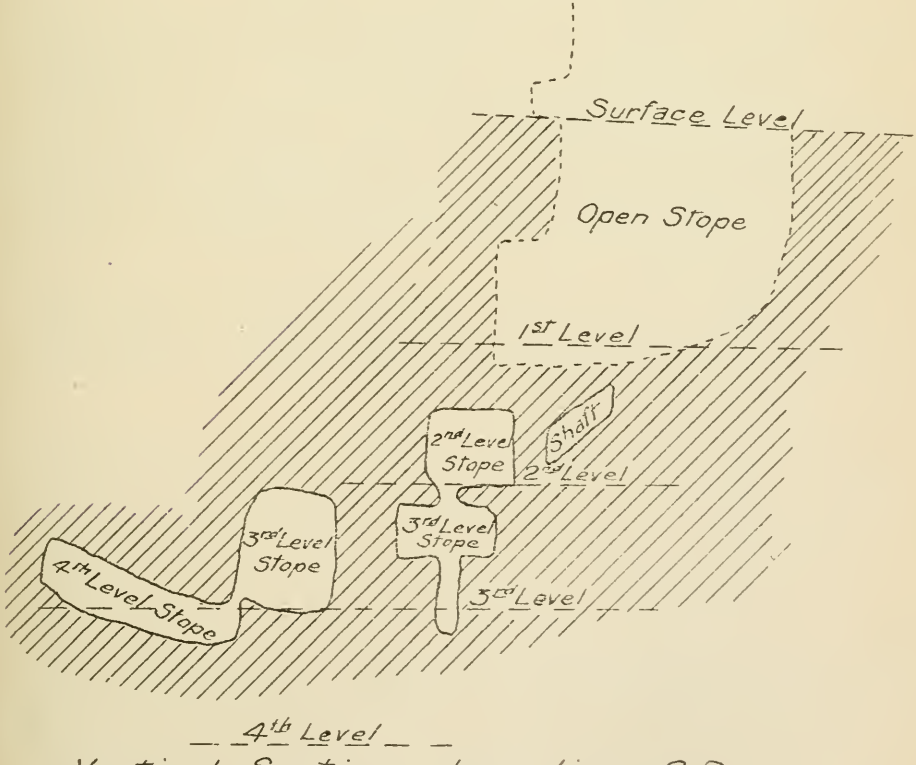
STOBIE MINE
Plan of Levels 3 and 4.
Scale 80 feet to an inch

There is a gap of about 400 yards between the last undoubted outcrop of the gabbro band and the hill of gossan at the Stobie mine, but the ground is wooded and partly drift-covered, obscuring the relationships.

The Stobie mine was one of the earliest found and has been worked more extensively than any other, partly as open pits and partly by underground levels. It has, however, been shut

down for some time, and only the surface workings and the rock dumps are now accessible. The main pit with its cavernous openings and stopes into which the pigeons fly to build their nests is a very impressive proof of the size of the ore deposit, which is said to be far from worked out yet, though over 400,000 tons of ore have been taken from it.





There is no large continuous mass of gabbro at Stobie, but a number of small masses push through a mixture of green schist, hornblende porphyrite, graywacké and crush conglomerate,

as if squeezed up at points of weakness ; and the whole hill, which is 330 yards in length from east to west and half as wide, is more or less gossan-covered, making the relationships difficult to determine. To the north there is swamp, to the west graywacké, to the south green schist and hornblende porphyrite rising still higher than the gossan hill, and to the east there is the great open pit and the mine buildings and the rock dumps, with a mixture of rock showing between, including those previously mentioned, and also a patch of graywacké conglomerate undoubtedly formed by water, since the well-rounded pebbles are of great variety.

The openings at the pits show mainly graywacké and hornblende porphyrite and grayish schists with only a minimum of rather fine-grained gabbro. The only other rock observed about the hill is a small patch of reddish granite on the south slope, isolated as if part of the crush conglomerate.

The large rock dumps consist chiefly of graywacké, often somewhat granitic or dioritic looking, and quartzite, both much spotted with ore, with a very little gabbro and a few blocks of chloritic or actinolitic rock. One block of diorite schist had been sheared along a number of planes which are now gilded with films of sulphide.

North of the swamp beyond the gossan hill there is graywacké for about 100 yards, and then rugged hills of hornblende porphyrite, green schist, diorite, and dark green rocks with small white spheres of fine-grained quartz, this mixture of rocks containing the Mount Nickel and Blezard mines. East and south there are graywackés and quartzites broken by bosses or ridges of very coarse dark green hornblende porphyrite, but with a few narrow strips of the water-formed conglomerate mentioned before.

The Frood-Stobie band of gabbro is not known to have surface connections with the main range to the northwest, from which it is separated near the Frood mine by three-quarters of a mile of swamp and granite later in age than the nickel-bearing gabbro, as seen at the Murray mine ; while the intervening rock of about the same width at the Stobie mine is of mixed greenstones older than the gabbro. It is possible that the widest part of the band, near the Frood mine, was once connected with the main nickel-bearing eruptive, but has been cut off from it by the later granite ; or it may be that there is somewhere a subterranean connection. It is hardly conceivable that the small band of gabbro by itself could supply by segregation the immense quantity of ore connected with it.

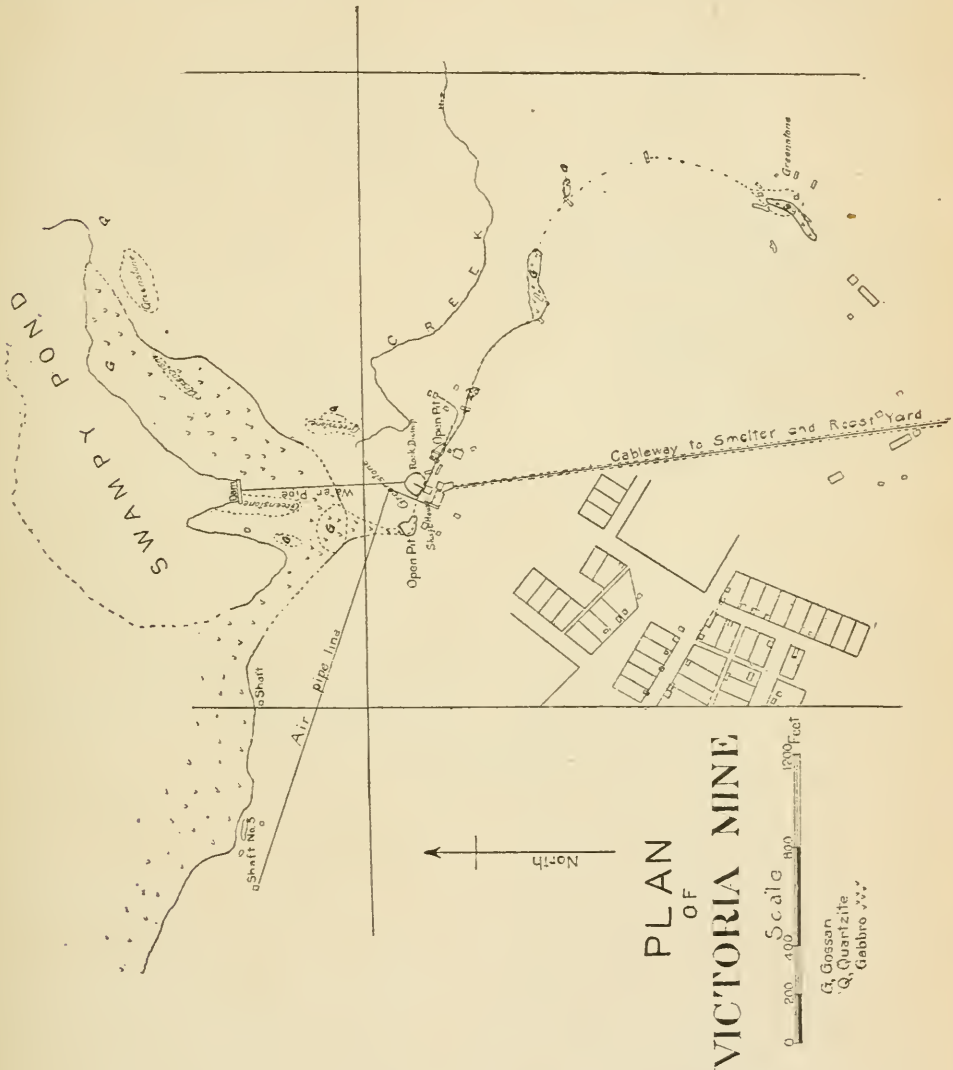
In spite of the large amount of ore extracted from the Stobie mine it has been worked only to a vertical depth of about 250 feet, the ore body dipping at about an angle of 65° toward the west. Work on this mine ceased in 1901, when the richer ore from the Creighton mine replaced it in the smelting operations at Copper Cliff.

The Victoria Mine Region.

The only other important nickel producing region is in the neighborhood of the Victoria mine towards the southwestern end of the nickel range. Victoria mine itself on lot 8 in the fourth concession of Denison township might perhaps have been taken up under the head of mines along the southeast edge of the main range, since it is only a short distance from that edge ; but as it is on the upper end of a narrow dike-like off-shoot which can be followed for a considerable distance it has been thought better to include it with the group of mines just described.

The line of contact of the main range was followed for about a mile and a half west of the mine, where a prospect is being opened up on lot 11. The coarse gabbro or norite to the north has the usual characteristics as found farther to the northeast and needs no particular description. The boundary here runs in a general way east and west, but with local fluctuations. The rock to the south is greenstone and green chloritic schist having apparently a dip of 70° or 80° away from the gabbro, a quite different arrangement from that at the Creighton or Elsie

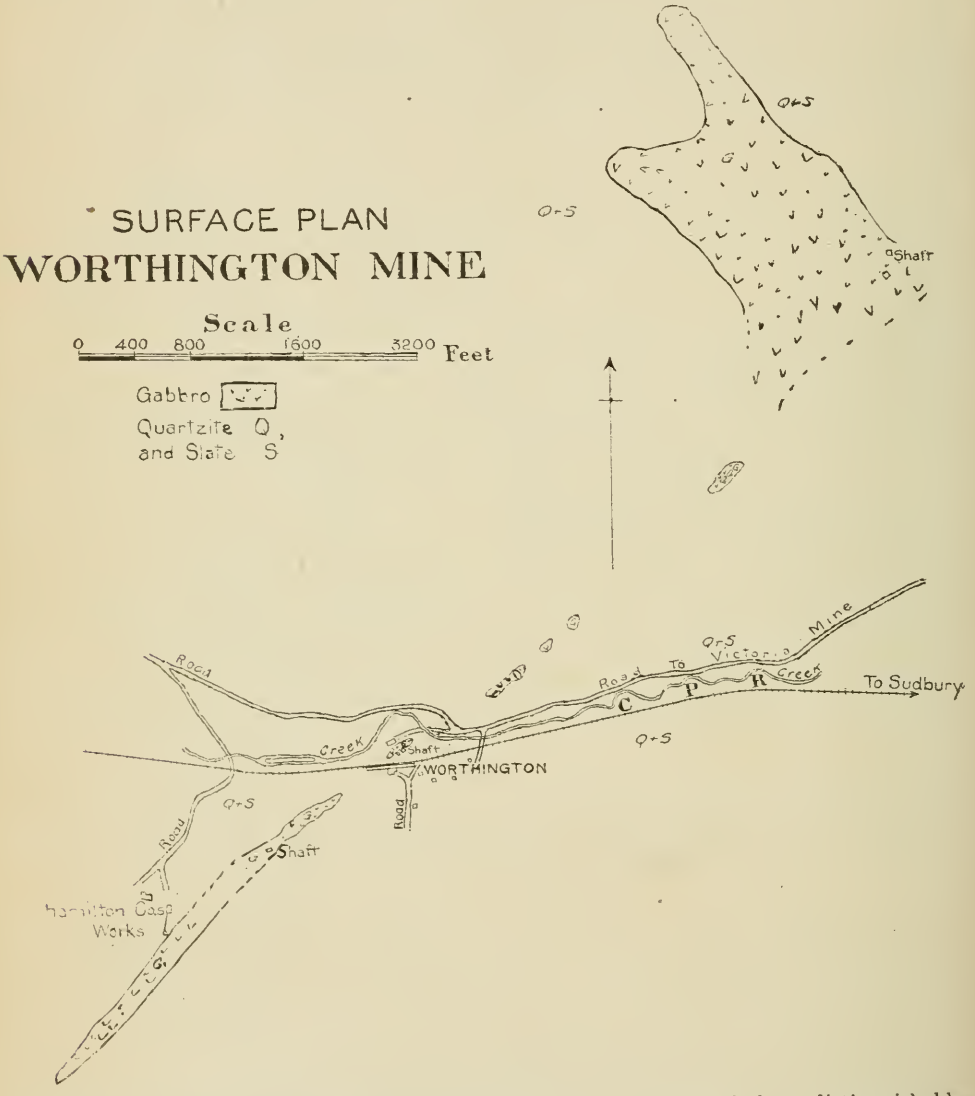
mines, where they dip at about 45° under it. However the schistose structure may be of later origin than the gabbro and may not indicate the real relationship of the rocks. The small pits opened last July showed a considerable amount of ore mixed with rock. A short distance away is a large quartz vein in the green schist, worked to some extent for flux employed in lining the converters at the smelter.



There are several small shafts and openings along the margin of the gabbro within half a mile of Victoria mine, generally however a short distance to the southwest of the gabbro, and as one approaches the mine the boundary curves to the southeast until lost in swampy ground just north of the mine. Beyond this it bends suddenly northeast about at a right angle, and is seen along the hill side southeast of the pond which serves as a reservoir. The adjoining rock is partly quartzite and partly greenstone. To the south of the mine along the tramway one finds various greenstones, diorite, hornblende porphyrite, and green schist, followed by chloritic slate interbanded with quartzite.

The rock dump consists mainly of green schist, mica schist and coarse quartzite, with smaller amounts of rather fine-grained gabbro and actinolite rock, all more or less impregnated with pyrrhotite and chalcopyrite.

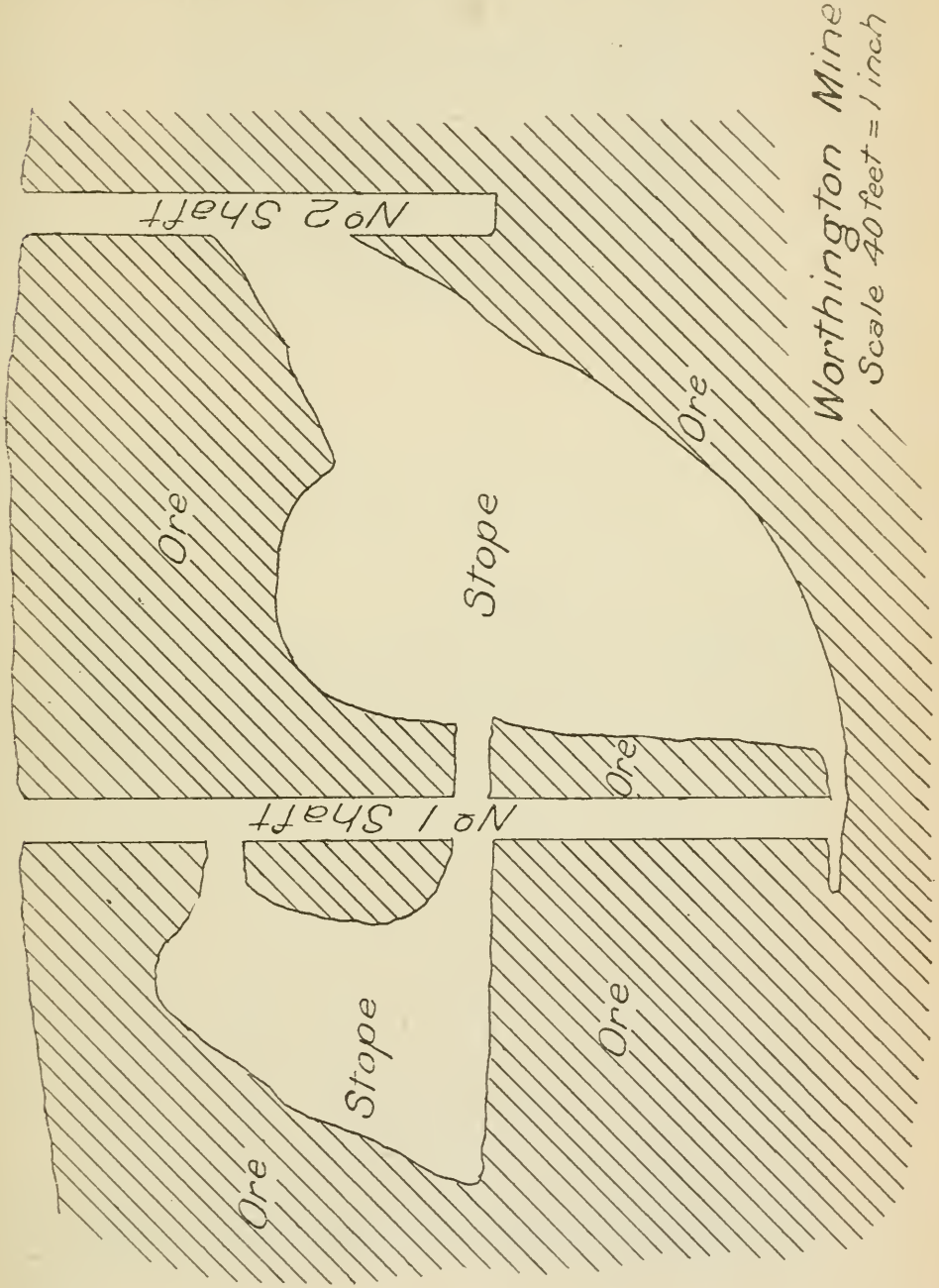
The open pits, one to the west and the other to the east of the shaft house, disclose very little gabbro, a narrow tongue of it coming in on the northwest side of the western pit, but hardly any being visible at the other.



The band of gossan, in which very fine-grained gabbro is here and there distinguishable, has been cross-cut at various points and runs as a line of small rusty hills for quarter of a mile to the southeast, then turns south for about one-fifth of a mile and apparently ends in a ridge about 100 paces long which bends to the southwest, much of the line being drift-covered.

A tramway follows the line of gossan to a shaft 100 yards southeast of the main shaft, and ore was being brought down in this way. From the rockhouse the ore is transported in buckets by an aerial cableway to the roast beds, halfway to the village; and the roasted ore is carried in the same way to the smelter near the railway, in all a distance of 11,000 feet.

From the map it will be seen that this mine occupies a somewhat intermediate position as compared with Creighton and Copper Cliff. As at the Creighton, we have the edge of the nickel-bearing gabbro pushing as a right angle into the neighboring rocks ; but here it



narrows to a funnel leading on towards an extension southeastward and southward. The mine is not at the apex of the angle like the Creighton, nor is it a long distance down the narrow extension as at Copper Cliff ; but just where the funnel has completely narrowed.

Was the fissure beyond this too narrow for the mass of the ore to traverse it, and did it therefore halt where we find it, only small quantities being able to penetrate farther? However this question may be answered, there is a large amount of ore in the two bodies about 200 feet apart which mining operations have disclosed. The main shaft, which is vertical; was down 467 feet in July, and work was going on at the sixth level. Since then diamond drilling has shown that the western ore body goes to a depth of 750 feet from the surface.

There is evidence here, as in other mines, of movements since the main ore bodies were formed, such as slicken-sided surfaces and the deposit of quartz and calcite. At an opening two or three hundred yards northwest of the mine the gabbro is curiously sheared into rather regular layers about two inches thick, with thin seams of chlorite between. This structure is parallel to the cleavage of the green schists near by, and suggests that at least part of the schistose structure is later in origin than the nickeliferous gabbro.

The interesting Vermilion mine, about a mile and a half to the southeast of Victoria mine, probably represents an extension of the band described above, though our examination failed to disclose any undoubted gabbro at the mine, the country rocks of which are schists and greenstones, related probably to the sheared eruptives of the Huronian.

The ores seem to be associated with irregular veins of quartz, though the sulphides are pyrrhotite and copper pyrites as in the usual nickel range, and very rich nickel ore is reported to have been found at the mine, as well as native copper, native gold and the rare arsenide of platinum, sperrylite[26]. It is likely that while the actual gabbro did not penetrate so far, solutions charged with nickel and other metals derived from it circulated here in fissures, thus forming the interesting Vermilion deposit.

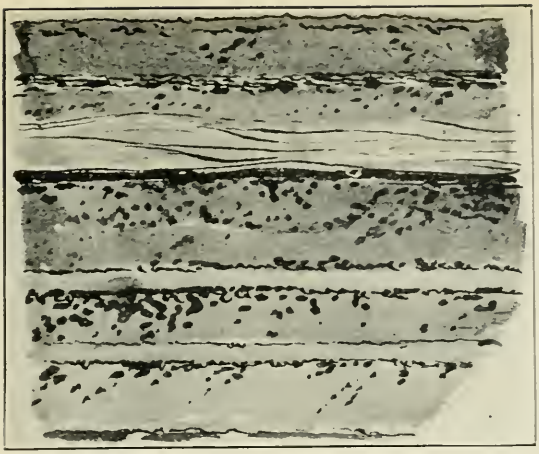
The Worthington Gabbro Band.

The Worthington, though one of the older mines of the region, has never been worked very extensively, and for six years has been shut down. Last summer it was pumped out and immense quantities of ice were discovered in it; perhaps due to the drifting of snow during the winter into No. 2 shaft, which had been left uncovered. The mine is unique for the richness of some of its ores, which include nickelite and gersdorffite, as well as the usual sulphides. It is on lot 2 in the second concession of the township of Drury, four miles southwest of Victoria mine, and the line of outcrops runs northeast and southwest, but no direct connection has been traced between the two, though it is probable that the narrow Worthington gossan band is connected in some way with the main nickel-bearing range to the north.

We traced the line of outcrops as shown on the bare surface of ridges or in crosscuts made for exploratory purposes for a mile and a quarter, with numerous interruptions covered by drift, however, the mine being situated about midway in its length. At the Worthington there is very little gabbro to be seen, and what is found is greatly mingled with broken-up country rock, chiefly diorite or hornblende porphyrite, with crush conglomerates of the same materials. The adjoining rock is slaty graywacké, and the rock on the waste dump is mainly actinolite.

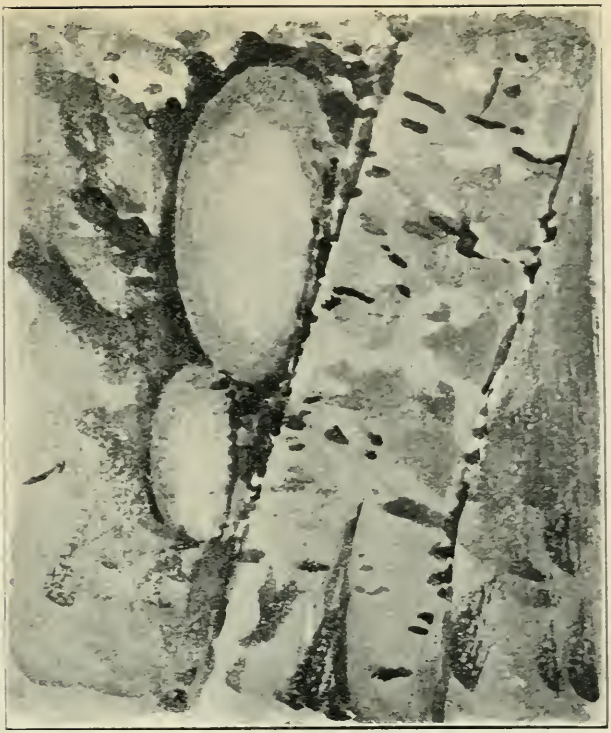
Going southwest from Worthington the band of gabbro widens somewhat, and at the Hamilton mine, on a hill a quarter of a mile from the Worthington, openings have been made displaying some ore. Here also the relationships are very confused, fine-grained more or less rusty gabbro enclosing fragments of greenstone so as to form a breccia, the whole having a greatest width of 60 paces. Most of the rock on the dump is massive actinolite. The rock to the southeast is graywacké and quartzite with crush conglomerate, and to the northwest a

[26] Bur. Mines, 1897, p. 142.



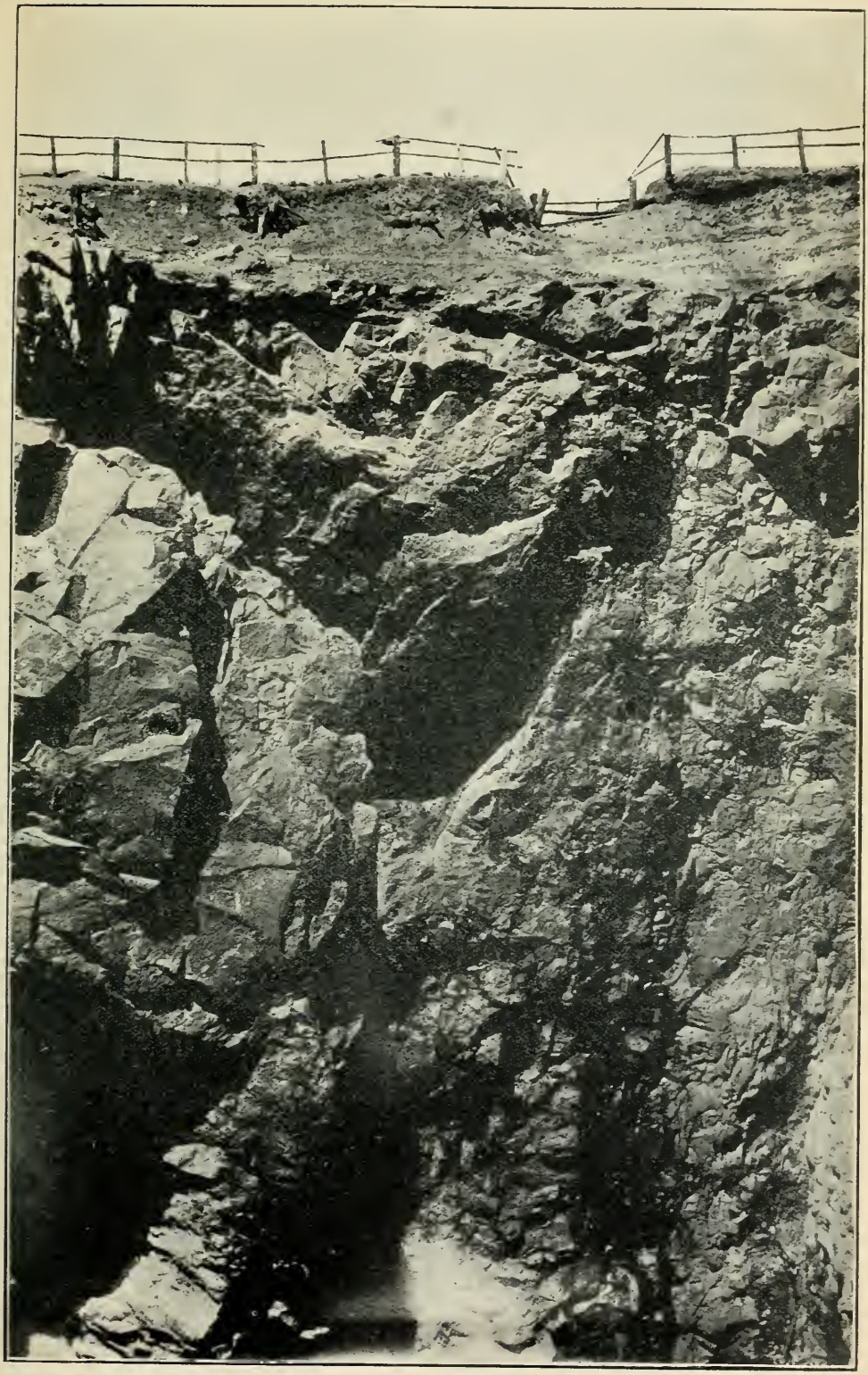
The Sudbury Nickel Deposits: Bedding of quartzite and slate.

The Sudbury Nickel Deposits: No. 2 mine, showing old skipway and men on scaling ladder.

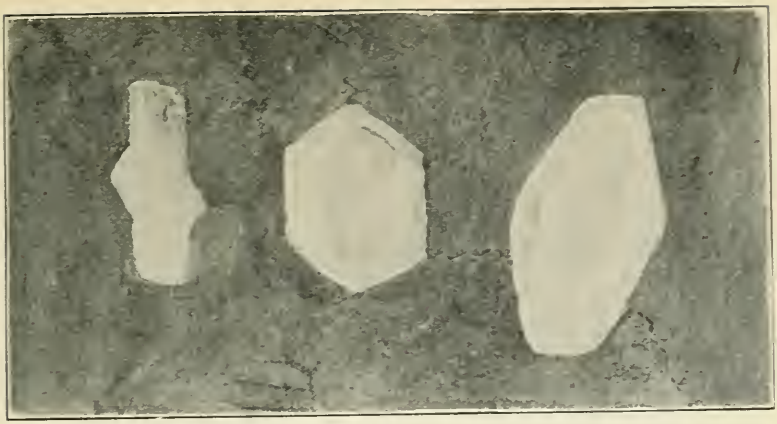


The Sudbury Nickel Deposits: Dike 2 feet wide with boulder-like projections, Creighton mine.

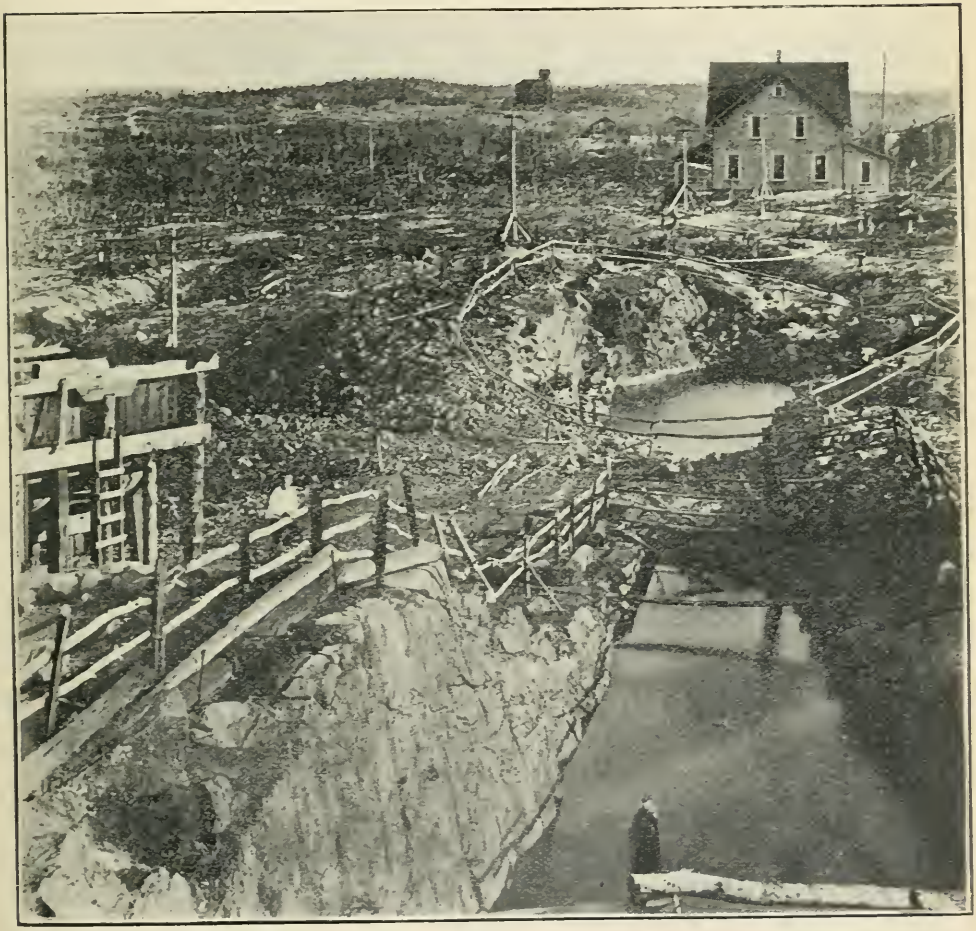
Canadian Copper Company: Matte yard, west smelter.



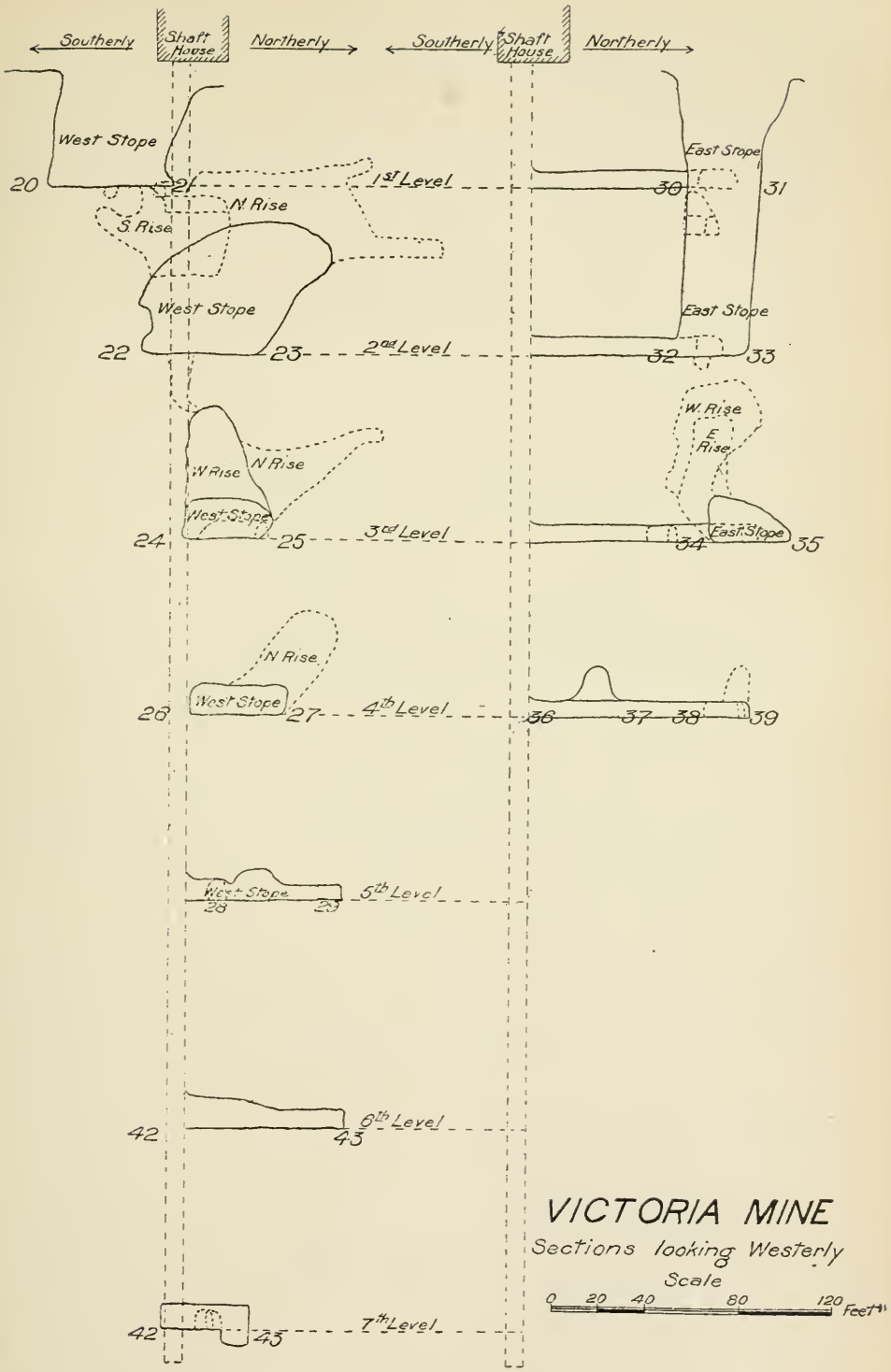
No. 2 Nickel mine, from old skipway.

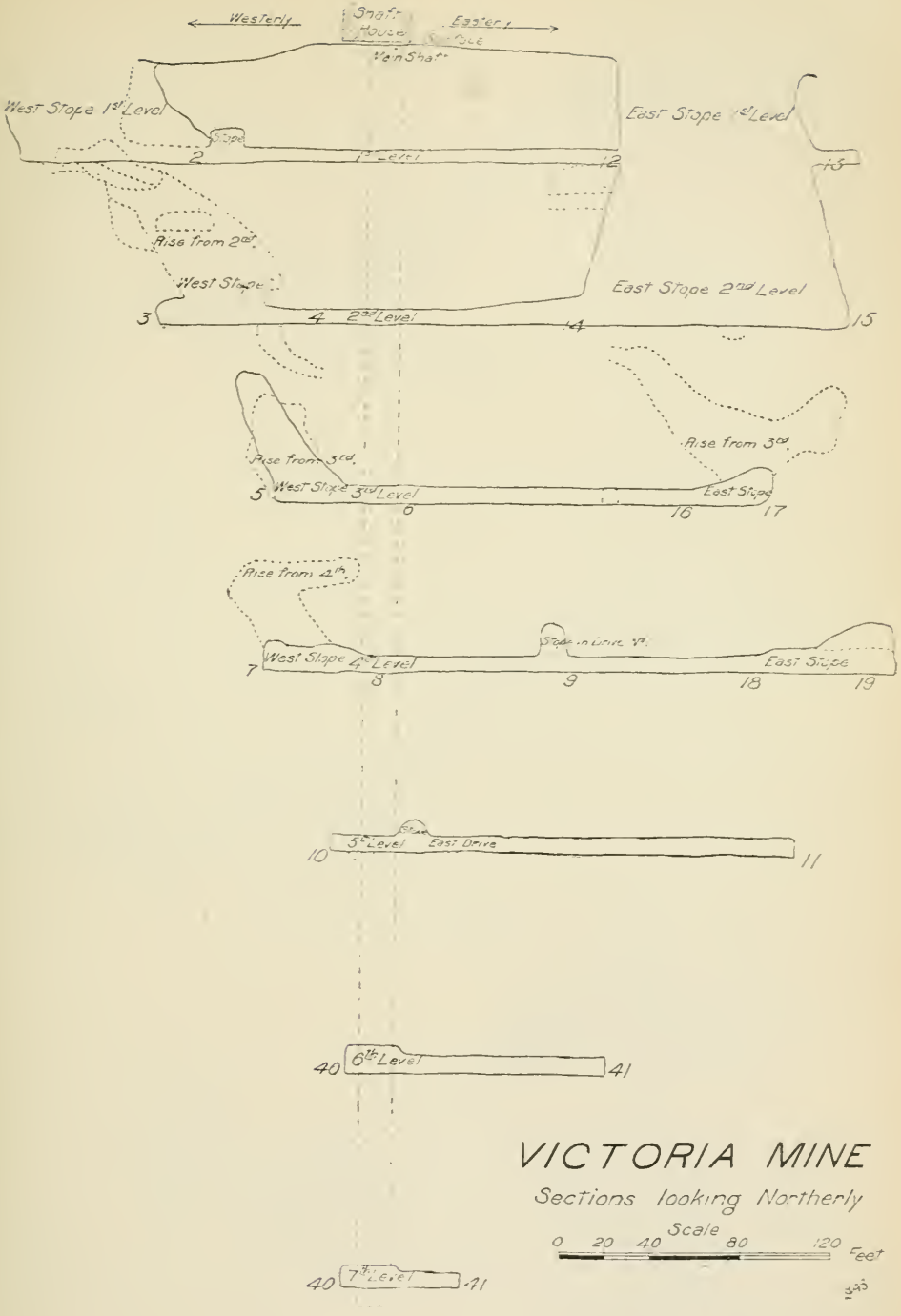


The Sudbury Nickel Deposits; Cross sections of staurolite.



The Sudbury Nickel Deposits; No. 1 mine looking towards the Evans.

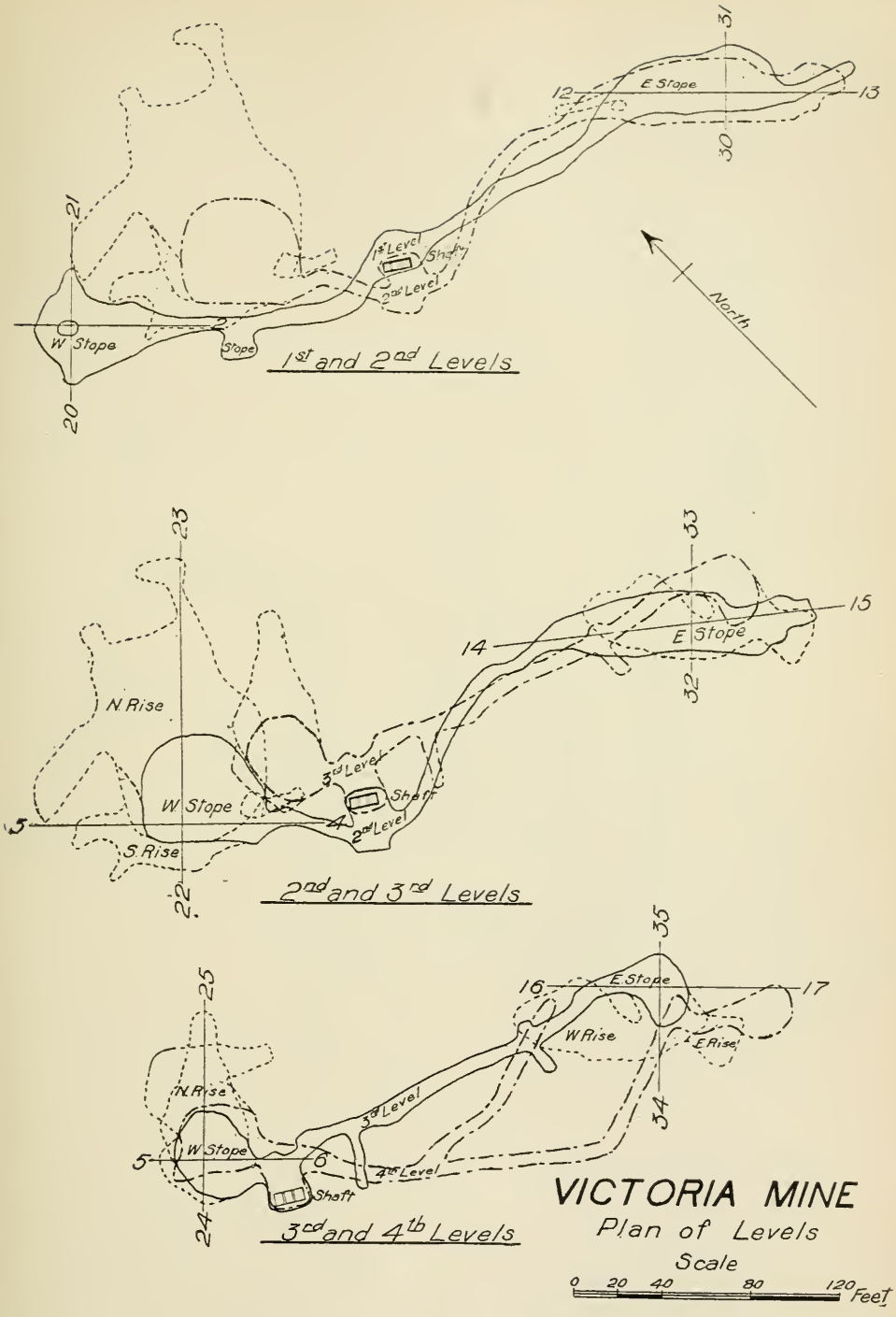

Southerly
Shaft House
Northerly
Southerly
Shaft House
Northerly
West Stope
East Stope
20
21
1st Level
30
31
N. Rise
S. Rise
West Stope
East Stope
22
23
2nd Level
32
33
W. Rise
E Rise
W Rise
N Rise
West Stope
East Stope
24
25
3rd Level
34
35
N Rise
West Stope
26
27
4th Level
36
37
38
39
West Stope
28
29
5th Level
6th Level
42
43
7th Level
42
43
VICTORIA MINE
Sections looking Westerly
Scale
0
20
40
80
120
Feet

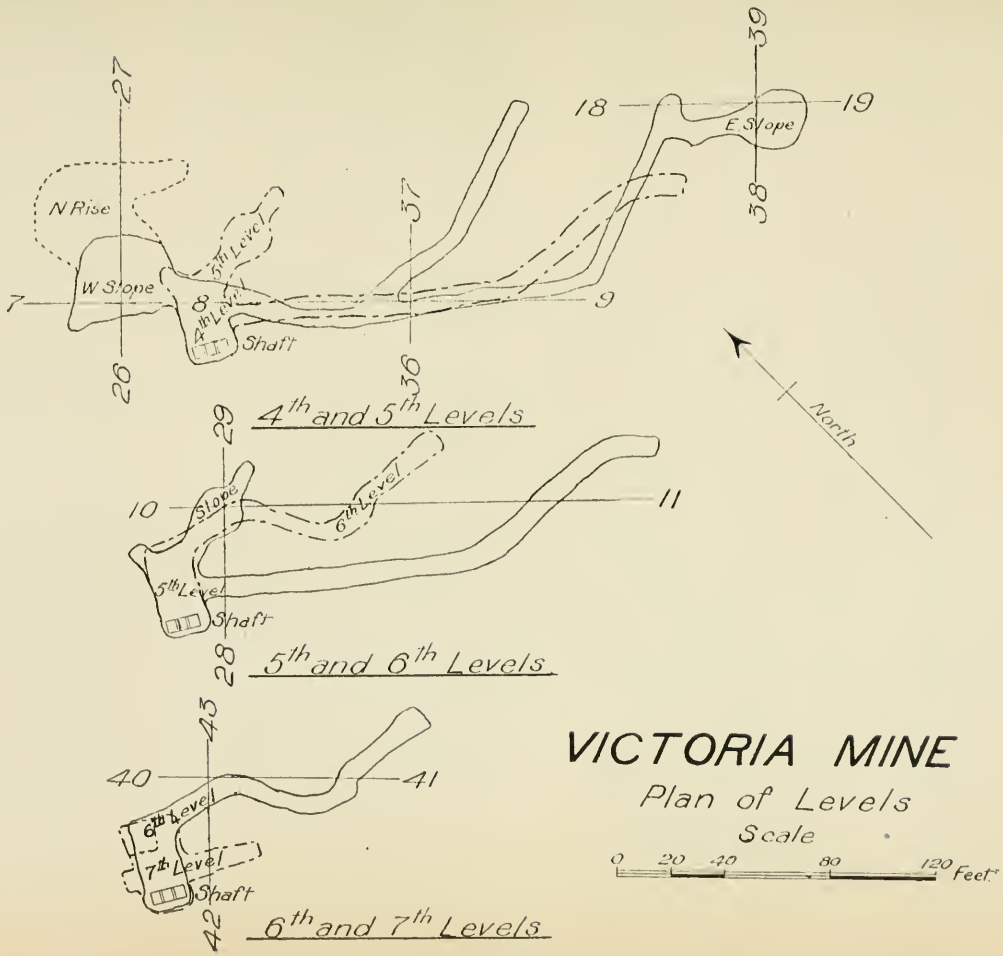


VICTORIA MINE

Sections looking Northerly

Scale 0 20 40 80 120 Feet


1st and 2nd Levels
W Stope
Stope
1st Level
Shaft
2nd Level
E Stope
North
2nd and 3rd Levels
N Rise
W Stope
S Rise
3rd Level
Shaft
2nd Level
E Stope
3rd and 4th Levels
N Rise
W Stope
Shaft
3rd Level
4th Level
W Rise
E Rise
E Stope
VICTORIA MINE
Plan of Levels
Scale
0 20 40 80 120 Feet



VICTORIA MINE

Plan of Levels

Scale

0 20 40 80 120 Feet

sandstone-like quartzite, sometimes showing a well marked cross bedding. A few hundred yards southwest of the shaft on the hill, the band of gossan sinks toward a swampy lake and was not followed farther.

Going northeast from the Worthington, the rusty band can be followed wherever the rock rises above the drift, but with very little gabbro and a considerable amount of medium-grained actinolite rock, perhaps replacing gabbro. At the last opening, which is about two-thirds of a mile from the mine; quantities of rock impregnated with sulphides occur, including gersdorffite and nickelite.

From this point for about 300 yards the band could not be traced, but beyond there is a large irregularly shaped area of gabbro containing one or two outcrops of sulphides, with which the Worthington band in all likelihood is joined.

The group of mines just mentioned, including the Victoria, Vermilion, and Worthington mines, is quite exceptional in the Sudbury district for the relatively large amounts of arsenical minerals and also for the native gold found in them. The gossan of the first two mines contains both sperrylite and native gold, and in early days these heavy minerals could readily be panned from the gossany materials resting on the ore deposits. The presence of native gold and copper as well as unusually rich compounds of copper and nickel at the Vermilion mine suggest a local concentration of these materials by the ordinary processes of circulating waters in veins, the source of the materials being the still hot, though no longer molten, nickel-bearing gabbro; and the absence of gabbro, so far as observed at the mine, is a further distinction between this curious deposit and the others of the region.

The Northern Nickel Range.

The mines along the main range of nickel-bearing norite or gabbro have been described in the earlier portions of this report. Beyond the eastern part of the township of Garson the range is difficult to follow, owing to the broad sand and gravel plains under which the solid rock is buried. Apparently the range turns northeast through Falconbridge to Maclennan township, where the boundary between it and the granites and greenstones forming the southwest shores was picked up in lot 9 in the second concession, and traced northwest past Moose lake to Blue of lake Wahnapitae lake. Most of the contact was worked out by prospectors who took up a series of locations along it before the township surveys were made. The band runs northwest to lot 5 in the fourth concession of Norman township and then turns west. The only points where exploratory work of importance has been done are at Blue lake and on the Whistle property where the range bends westward.

ORE DEPOSITS AT BLUE LAKE.

The Blue lake properties follow a chain of small lakes, of which Blue lake and Speckled Trout lake are the largest, and near Blue lake itself a considerable amount of stripping, diamond drilling and magnetic work has been done by the Algoma Commercial Company, under Mr. Clergue.[27] The mapping of the boundary throughout this northern range was done by my assistant, Mr. Culbert, and valuable suggestions regarding the relationships of the rocks of the region were given me by Professor Willmott, now in charge of the mining and prospecting operations of the Algoma Commercial Company.

The gabbro is lighter in color as a rule than near the mines formerly described, though a dark specimen was obtained on Moose lake; and quartz and biotite occur in it as in other localities, but the transition to micropegmatite is much more rapid than at Murray mine for instance, the width of gabbro proper being often only a few hundred yards or even less. Two gray gabbro-like specimens taken for country rock of the ore bodies turn out to be olivine diabase, and

[27] Bur. Mines, 1902, pp. 284-5.

no doubt belong to large dikes, as near the Murray mine. The granitic phase of the nickel-bearing eruptive comes against volcanic breccia to the southwest ; while the basic edge with the ore bodies lies against granite or greenstones. In some cases the granite appears to have penetrated the gabbro, though this may be deceptive and due to faulting and brecciation at the edge. In other places the gabbro is observed to be fine-grained at the edge as if it had cooled against the present rock. Near Moose lake in one place there is a band of greenstone between the granite and the gabbro ; and the greenstones are certainly the oldest rocks of the region, having been carried off as angular blocks by the coarse-grained often pegmatitic granite. A green-gray dike rock, much like the finer parts of the nickel-bearing gabbro, penetrates the granite irregularly and has possibly been sent off from the gabbro, though no gossan or ore was observed in connection with it.

The stripping and test pits along the shores of the two lakes prove that ore is widely distributed along the margin of the gabbro, and diamond drill cores show that the solid ore near the east end of Blue lake is in one hole 82 feet thick with several feet of mixed ore and rock in addition. The dip of the ore is to the southwest. or away from the contact with the granite and greenstone, corresponding in this respect to the relationships observed on the main range to the southwest.

THE WHISTLE PROPERTY.

A canoe route leads from Blue lake, which is reached by a wagon road from Sudbury, to the Whistle property, passing through the northeast end of Capreol township by Clear lake and Trout lake to Waddell lake and Selwyn lake in Norman township. The Whistle property is on lots 6 in the fourth and fifth concessions ; and has been opened up by stripping and test pitting, showing an extraordinary extent of gossan surface, about half a mile in length from southeast to northwest, and 250 yards wide at the widest place. As far as extent of gossan is concerned this seems to be the largest exposure of ore in the district. The hill on which the stripping has been done rises 230 feet above the valley of McConnell creek to the southwest.

The gabbro in connection with the ore on this property is very fine-grained and mixed with fragments of other rock, almost forming a conglomerate with a matrix of gabbro. It seems to be broken or crossed by some dikes of granite and patches of greenstone ; and the adjoining rocks are granite, often pegmatitic, and greenstone ; these two rocks enclosing the gossan hill on three sides, southeast, northeast and northwest. Here again we find a large ore deposit caught in a sharp angle where the gabbro pushes into the neighboring rock.

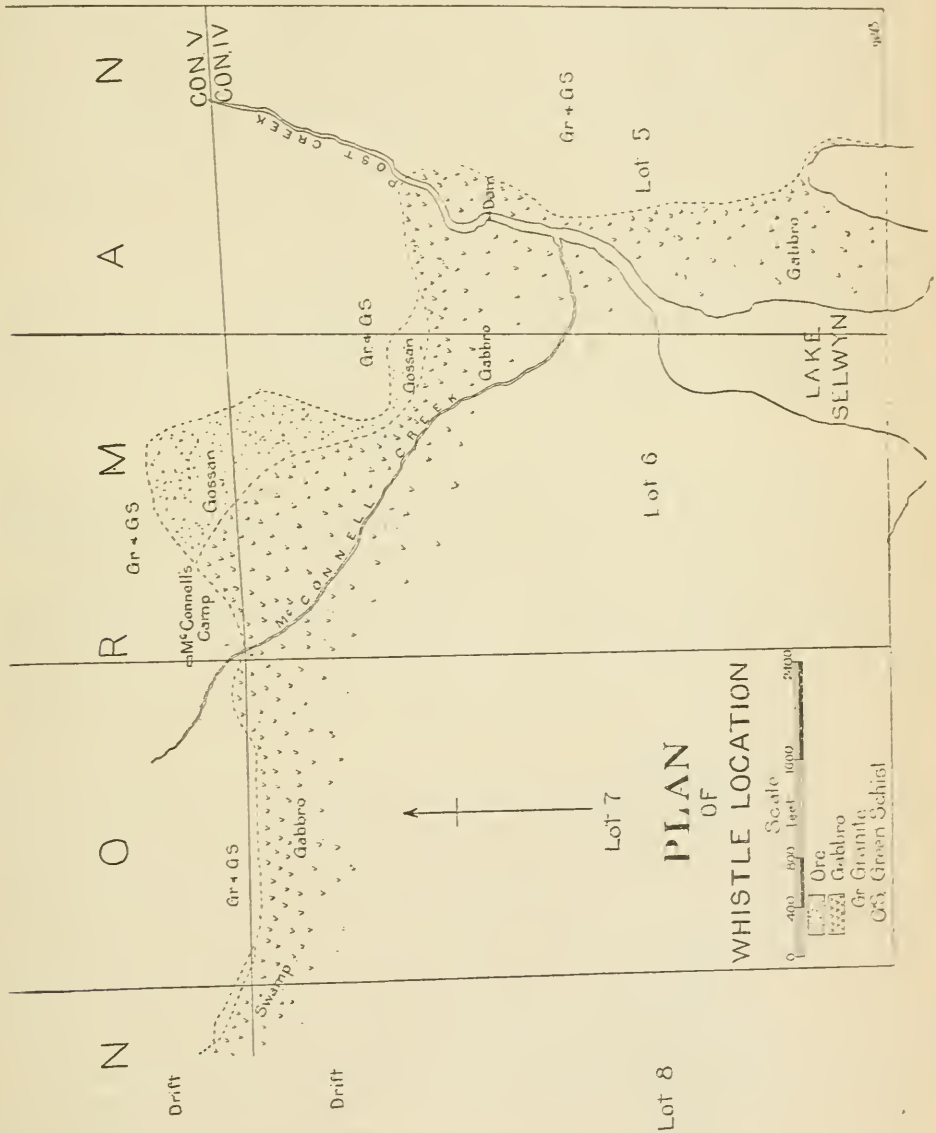
The ores of the Blue lake region are like those of other parts of the district in most respects, though the pyrrhotite, as suggested by Mr. Vasey, who was in charge of the diamond drill, is apparently more magnetic than elsewhere. Masses of the ore near Blue lake are fairly strong natural magnets, readily attracting the compass needle and holding iron filings, but they are, of course, far surpassed in this respect by magnetite. Some octahedra of pyrite are found in the pyrrhotite.

The string of small lakes mentioned above follows in a general way the basic edge of the nickel-bearing eruptive, as if that were most easily acted on by weather, and their western shores often consist of bluffs of reddish, syenitic-looking rock, the more acid and also more resistent phase of the eruptive.

From the Whistle property on Selwyn lake the contact of gabbro, with granite or greenstone was traced by Mr. Culbert through Norman and Wisner townships to the western edge of Bowell township, following the line of locations taken up by prospectors. At about the centre of Bowell the range appears to fork, one branch going a little north of west into Foy, and the other to the southwest into Morgan township. As the work was of a hurried character, its results need not be described in detail, but in general they correspond with those obtained

on the southern range, but exactly reversed. The gabbro meets older granitic rocks to the north and blends into micropegmatite and quartz syenite or granite toward the south, and the ore bodies are on the northern or northwestern edge of the gabbro.

It is of interest to note that one of the most promising properties of the range, just north of Nickel lake (in W. P. 131), is in a sharp northward angle of the gabbro, a similar arrangement to that of the Whistle and Creighton deposits.



The whole of the northern range is awaiting the coming of a railway when, no doubt, the better properties will be developed, and perhaps prove equal to those of the now well-known southern range.

General Conclusions.

In the foregoing pages the chief mines of the Sudbury district have been taken up in some detail, and the fact has been brought out that all of them are either on the basic edge of a great eruptive band, which at the opposite edge becomes a quartz syenite or granite, or on dike-like off shoots, often, however, interrupted by other rocks projecting from the southeastern basic edge of the great gabbro band.

Last summer's work proves also what had already been made probable by the patient work of prospectors, that the main belt, after a short drift-covered gap in Falconbridge and the southern half of Maclennan, turns northwest and north to the middle of Norman, and then bends southwest to the middle of the township of Bowell, where it forks. Though the northern nickel range had been crossed by myself at three points previously, [28] it had never been followed up connectedly ; but we can now say that the basic edge of the nickel-bearing eruptive band has been traced practically continuously by the work of Dr. Barlow and of the Bureau of Mines from Drury township east and northeast for 35 miles, then north-northwest for ten miles, and east for 17 miles, making a total length of 62 miles. It is possible, but not yet proved, that one or the other fork of the nickel range in Bowell connects with the promising Levack nickel range about seven miles distant. This band of nickel-bearing eruptive is stated by Dr. Barlow to run southwest for 18 miles to lot 12, in the third concession, of Trill, [29] from which the distance to the Sultana nickel mine on the northern edge of Drury is only four miles

Features of the Norite Band.

It is evident that the nickel-bearing eruptive band encloses with only short interruptions the elongated oval area of rocks consisting of volcanic ash, sandstone and black slate represented by Dr. Bell as probably Cambrian, an area about 35 miles long and eight miles wide.

As will be seen from the previous description, the main band is everywhere basic and nickeliferous outwards from this roughly oval centre, and more acid and pegmatitic inwards toward the sedimentary rocks. For example, Professor Walker describes the Windy lake eruptive band, with which the Levack nickel deposits to the northeast are connected, as having much the same character as the Murray mine eruptive on the opposite side of the sedimentary area but in the reversed order. [30]

In most cases the nickel-bearing gabbro or norite becomes finer-grained against the coarse granites, granitoid gneisses, hornblende porphyrites and other greenstones on its outward side, and so may be held to be later in age though there is sometimes on the other hand a medium or fine-grained granite which occasionally cuts the gabbro and is undoubtedly later still. The relationship of the acid side of the eruptive band to the adjoining pyroclastic rocks (volcanic ash or vitrophyre tuff) is not so certain. Dr. Bell evidently looks on the sedimentary rocks as younger than the granites and gneisses on which they rest, but Dr. Walker and, if I am not mistaken, Dr. Barlow, think that the contact between them is eruptive, [31] and therefore that the overlying sedimentary beds are older than the nickel-bearing eruptive rocks. Our work was so strictly confined to the nickel-bearing basic edge of the band that we had little opportunity to observe the opposite contact, and saw no section which would determine the matter.

One naturally asks why this oval band of eruptive rock, basic on the outer edge and acid on the inner edge, should be so symmetrical as it is ; and if one thinks of the band as simply

[28] Rocks of Clear lake, near Sudbury, Can. Rec. Sc., Apr , 1893, pp. 343—6, Bur. Mines, 1901, p. 152 and p. 185.

[29] Geol. Sur. Car,, Sum. Rep , 1901, p. 144.

[30] Quar. Jour. Geo. Soc., Vol. LIII (1897) pp. 56-8.

[31] Ibid., pp. 53-4.

a greatly elongated laccolite or stock of horseshoe shape there is no discoverable reason for the symmetry. A point previously referred to gives a hint as to the real cause of the symmetry. The contact of the main nickel-bearing band with the older rocks outside, so far as known, always dips inwards, often however with a very irregular surface, but with an average inclination of about 45° in the mines which have been worked sufficiently to show the relationship. This strongly suggests that we are dealing with a vast sheet of eruptive rock having a basin shape ; a sheet nearly 40 miles long and 17 miles wide, and probably a mile and a half or two miles thick on the average, if the dip is 45°. Following Professor Walker's account, which makes the inward edge granitic or gneissic, it must have cooled slowly and beneath a great thickness of overlying rock, for the granitic structure demands these conditions. This would give the exceedingly slow rate of cooling which would be required according to the segregation theory for the gradual separation of the more acid from the more basic materials, and of the most basic materials of all, the sulphides, from the quartz gabbro or norite at whose edge they are found.

THEORY OF ORE FORMATION.

On what system did the separation take place? Was it due to the slow segregation of the sulphides at the solid and relatively cool margin ; or was it essentially the result of gravitation, the heavier materials going to the bottom? The latter view seems rather probable. Thus we may imagine the ores accumulating in pools where there were indentations or hollows below the general level, and get an idea of how the narrow dike-like off-shoots could consist of such vast quantities of sulphides with a minimum of rock, as we find in the gossan band at Copper Cliff. Possibly another factor helped in the process of squeezing the ores with a relatively small admixture of rock into these half-open fissures ; the fact that the sulphides are more fusible than the gabbro magma, and hence could be forced more readily into all the ramifications of the irregular canals in which we now find them.

We may suppose that the intrusion of the great sheet of molten material took place between the underlying solid crystalline rock and the softer, uncrystalline sediments as the plane of least resistance, but that the rocks beneath underwent great disturbance at the same time, including faulting on an extended scale such as we see in all the rocks of the region except the gabbros and later eruptives ; and thus the tortuous channels just referred to were opened for the passage of the sulphides and accompanying gabbro.

We may imagine, also, that the pouring upward of such a mass of molten rock would allow the solider parts of the crust to collapse more or less from the removal of material from beneath. To this, and perhaps to some extent also to the cooling and shrinking of the area which had been so greatly heated, during the ages since the eruption, we may attribute the basin shape of the tract enclosed by the nickel-bearing eruptive.

We must think of the segregation as practically complete before the fissures were opened into which the immense quantities of sulphides found at the Stobie or Copper Cliff were injected ; for it is inconceivable that the small amount of rather acid gabbro associated with these ore bodies could normally have contained such an amount of sulphides.

It will be understood of course that the hypothesis given above is merely tentative, and may have to be remodelled or replaced by some other hypothesis as our knowledge of this interesting region grows more extensive ; but it affords at least a working basis for the study of the ore bodies and their associations.

It is a striking fact that the other gabbro areas of the district, such as the laccolite east of Sudbury, which are apparently entirely disconnected with the main range, have not been proved to contain ore bodies of importance, though small quantities of both pyrrhotite and chalcopyrite are found in them. Apparently they were of too small magnitude to provide large quantities of ore, or else their magmas were originally of a different composition from that of the

main range. They may have been segregation products themselves from the already differentiated magma, from which most of the sulphides had already been removed.

Foullon, Bell and Barlow among the early geologists who visited the region recognized distinctly the eruptive origin of the Sudbury ore deposits. In 1891 the latter says "the ores and the associated diabase were therefore in all probability simultaneously introduced in a molten condition, the particles of pyritous matter aggregating themselves together in obedience to the law of mutual attraction."[32] The theory of segregation, elaborately worked out by Vogt for Norwegian ores associated with norites or other basic rocks, was naturally applied to our deposits by Dr. Adams ;[33] and though it has been opposed by Posepny, who thinks the presence of metallic sulphides in the magma of a molten eruptive rock an impossibility[34] practically all other geologists who have studied the question admit that the ore deposits are to a greater or less extent of igneous origin. They have been spoken of as stockwerks, lenses, etc., but these terms do not correctly describe the ore bodies, since they are really small or large masses of more or less pure ore fading out into the adjoining rock and often of very irregular shapes, as may be seen at the Stobie or Creighton mines.

It is of interest to find that the late Prof. A. W. Stelzner, of Freiberg, the well known petrographer and mining geologist, held the ore and accompanying eruptive rock to be contemporaneous in origin. In a letter to Mr. G. R. Mickle dated Nov 12th, 1892, he gives the result of examination of some specimens of rock and ore which had been sent him as follows ;

"Polishing one side of rather large pieces gives very pretty results. In the ore from the Vermilion mine one sees plainly—much more plainly than on the surfaces of fracture—the intergrowth of pyrrhotite, chalcopyrite and characteristic yellow lamellae which might be either millerite or polydymite. Moreover on a polished surface like this the black rock inclusions in the sulphides show up plainly. The true nature of these inclusions and their relation to the ore is disclosed by the sections. One sees then that these black rock inclusions in no way are sharply divided from the sulphides but are connected with them by quite gradual transitions. Those of the Vermilion ore consist of quartz, brown mica, chlorite, hornblende and some epidote ; those of the Murray ore of triclinic feldspar, augite, which is more or less decomposed, some brown mica and epidote. The intergrowth with the ore is such an intimate one that I cannot regard the black specks as fragments enclosed by the ore, but can see in them only concretionary formations which are of the same age as the ore. Similar relations of ore and country rock occur also in the Norwegian pyrite and in the pyrrhotite "

THREE TYPES OF ORE DEPOSITS.

In reality there are two different types of deposits represented in the mines of the district ; those along the southeastern margin of the main range, often crowded into bay-like indentations of the adjoining rock ; and those strung out along the narrow off-shoots from the main range, as Peters suggests, "like sausages on a string, but with a long piece of string between the sausages."[35] Among the former class are the Creighton, Gertrude, Elsie, Murray, and Blezard mines ; among the latter the Copper Cliff, Evans, Frood and Stobie, and the Victoria and Worthington mines.

Perhaps a third variety should be distinguished for the Vermilion mine, which contains rich nickel and copper ores, but has no visible association with a band of gabbro, having, however, been formed probably by hot circulating fluids proceeding from such a band. It must be admitted that circulating waters have played a considerable part in all the deposits, but at the Vermilion mine they seem to have been perhaps the only factor ; while at other mines they have played a less important part.

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[32] Geol. Sur. Can., 1890-91, 128 S.; also Ottawa Naturalist, 1891.

[33] The Igneous Origin of Certain Ore Deposits, Mining Assoc. Pro. Que., 1894 ; also copied into the Mining Review, Vol. XIII, No. 1, p. 8, etc.

[34] Genesis of Ore Deposits, p. 146.

[35] Min. Res. Ont., p. 104.

The marginal deposits, as we may call the first type, are of all sizes and shapes, but have some features in common. They all dip westward or northwestward with the rock adjoining the ore-bearing gabbro as a more or less regular footwall. The ore may penetrate the footwall by impregnation or by deposit in fissures for a short distance and may enclose fragments of it; but it never goes far in this direction, and independent ore bodies do not occur in the wall-rock. The footwall has commonly a dip of from 29° to 65° to the west or northwest. In the other direction there is no sharp limit to the ore; it may fade off into the gabbro; rounded or irregular masses of the gabbro may be enclosed in it; or separate ore bodies may be entirely enclosed in the gabbro. A fringe of gossan-covered rock containing intermixed ore may extend for some distance in each direction along the margin, and may connect two ore bodies, as at the Elsie and Murray mines. In fact at most points on the basic edge of the great eruptive sheet more or less ore may be found; but the greatest ore bodies are enclosed in embayments of the edge from which no narrow dike-like offset projects, the ore having been caught there with no chance for escape.

None of the marginal ore deposits have been worked to great depths, the deepest point to which the ore has been followed being not more than 250 feet, so that little can be said as to the vertical continuity of this type, but one of them has already produced about 150,000 tons of ore, showing that the ore bodies may be large.

The other type of ore deposits is confined to offsets from the main range, often dike-like projections, but without the uniformity usual in dikes. Bands of gabbro, more or less gossan-covered, lead off from a funnel shaped bay of the main range and here and there accumulations of thousands or hundreds of thousands of tons of ore occur along the line. Frequently the band is lost on the surface, but from point to point a gossan hill projects where more or less gabbro and ore can be found, suggesting an underground connection. The causes that determine the position of an ore body are not always clear Some occur at the point where the bay narrows, as at the Lady Macdonald or Victoria mines; others at the end of a continuous band of gabbro, as at No. 2 mine near Copper Cliff, and still others as separate outcrops like the Copper Cliff, Evans and Stobie mines. The ore bodies may be supposed to occur where some halt or obstruction in the channel along which the mixture of rock and ore was travelling gave an opportunity for separation of the two constituents.

These ore bodies are often rudely cylindrical or chimney-shaped, unlike the irregular masses of the marginal type; they are known to have a considerable vertical extension, one having been worked down to 937 feet; and they are not usually so much inclined from the vertical as the other type. They include the richest known mine and also the one that has produced the largest amount of ore.

Where a bay-like projection of the main range has no outlet we may expect to find a large ore body of the first type; where the bay sends off a projection the ore that would have accumulated marginally is distributed irregularly along a line that may reach two miles or more from its starting point. Occasionally the point of departure from the main range of an offset line of ore deposits is not known, *e.g.*, the Frood-Stobie range, but the presence of a band of later granite between the main range and the offset probably accounts for the break of continuity here.

As the relation between ore and rock is much the same in offset deposits as in marginal deposits, we may conclude that they were formed in much the same way, by the more or less complete separation of the two fluids while still in a state of fusion. Most of the offset deposits show the same fading out into barren rock, the same inclusions of country rock, etc., which in the marginal deposits prove the igneous origin of the ores.

There are however undoubted proofs of the secondary origin from solution of considerable portions of the ore at most of the mines of this type. At the Copper Cliff we find bands of

quartz or carbonates with ore along the sides of dikes later in age than the main body of the ore, showing that a redistribution of materials by circulating water has taken place ; but in general the evidence goes to show that this action has been less important in the production of ore bodies than the original segregation from the molten magma.

The gossan band on which the Worthington mine is found, should be briefly referred to as indicating a transition to the rather unimportant third type of deposit, formed wholly by circulating water. At the Worthington the gabbro is reduced to a minimum, unless the actinolite rock accompanying the ore is its decomposition product, and the presence of rich nickel ores, combined with arsenic, is probably due to the extensive action of heated waters, which seems to have produced a large part of the deposit.

The only characteristic example of ordinary water-formed vein deposits in the nickel region, however, is the curious Vermilion mine, where we find quartz, etc., but no gabbro, accompanying rich ores of nickel and copper, as well as free gold and copper in the upper parts of the deposit. The close connection of this type of deposit with the off-set type is shown by the presence here as well as at Victoria mine, less than a mile and a half away, of native gold and sperrylite, the rare arsenide of platinum. Evidently the two must have been supplied with platinum from the same source ; and all transitions between ore deposits entirely due to plutonic action, and deposits formed by circulating heated waters may be supposed to exist in the region.

The final impression left is that the marginal type of deposit is in the main of plutonic origin, the aqueous work being relatively unimportant ; that in the off-set type plutonic is generally more important than aqueous action, though one example, that of the Worthington, suggests more complete rearrangement of the materials by circulating water ; thus forming a transition to ordinary vein deposits wholly due to water action, as at the Vermilion mine.

COMPOSITION OF THE ORE BODIES.

The characteristic ores of the deposits which have been referred to are few and monotonous, consisting as they do essentially of pyrrhotite in largest amount, and chalcopyrite in smaller quantities. The pyrrhotite is always nickeliferous, though in varying degrees, and the amount of copper pyrites, though quite variable also, is usually sufficient to provide nearly or quite as much copper to the matte as there is nickel. In some mines, like the Copper Cliff, the copper decidedly outweighs the nickel, while in others, like the Creighton and Blezard, the nickel is more than double the copper. It is found in the Copper Cliff mine that in narrow parts of the ore body copper pyrites preponderates, while in broader ones the nickel contents are greater. In most mines the sulphides are more or less mixed with silicates, showing that the separation, by whatever means it was effected, was incomplete ; and inwards toward the main body of norite or gabbro the sulphides gradually diminish. Prof. Walker notices at the Murray mine that the sulphides are coarser-grained at a distance from the contact, and finer-grained as they approach it, suggesting more rapid cooling at the contact, as in the enclosing gabbro. There is, however, no doubt that parts of both ores were deposited from solution long after cooling had advanced far enough for consolidation ; for we find thin stringers penetrating the fractured outer edge of diabase dikes which evidently occupied fissures in the already cold gabbro and the associated sulphide masses.

The pyrrhotite and chalcopyrite having in large part consolidated directly from the cooling rock, crystals of these minerals are almost never found in the ore deposits. The only crystal of pyrrhotite which I have heard of in the district was obtained by Mr. G. R. Mickle from a man working in the Worthington mine. Mr. Mickle describes it thus : "The crystal is evidently a hexagonal prism showing strongly marked basal cleavage ; two of the sides are intact and portions of two others remain. The dimensions are $1\frac{3}{10}$ inch or 32 mm. by $\frac{1}{2}$ inch

or 13 mm.; the weight 26.4 grams : and an analysis of a very small fragment from the crystal gave 2.3 per cent. of nickel."

The amount of sulphur present in the nickel-bearing magma seems to have been generally sufficient to satisfy most of the iron, nickel and copper in the form of mono—or sesqui—sulphides, such as pyrrhotite and chalcopyrite, which contain 35 to 40 per cent. of the element, but not sufficient to form much pyrite, which requires over 53 per cent. However a small amount of pyrite and also of marcasite has been found by Professor Walker in massive pyrrhotite at the Murray mine, and Mr. Culbert discovered a few small octahedra of pyrite in the Blue lake ore.

Large cubical crystals of pyrite occur however in fissures with quartz and calcite at a few of the mines, such as the Elsie, but are evidently of much later date than the sulphides in general. An assay of one of the crystals from the Elsie mine showed no nickel.

On the other hand, there was occasionally not quite enough sulphur to satisfy the whole of the three metals, and small amounts of magnetite are found in some of the deposits, as in the ore from Levack, well formed octahedra being embedded in the pyrrhotite, showing that the magnetite crystallized first. The largest known mass of magnetite occurred at Clara Bell mine north of Copper Cliff, where according to Captain McArthur about five tons were found completely enclosed in the sulphides. This magnetite is readily attracted by the magnet, so that it is probably not highly titaniferous ; and it contains grains of pyrrhotite and chalcopyrite as well as small portions of a green silicate.

Titaniferous iron ore was found in small quantities by Dr. Walker in the ore at the Murray mine, and most of the thin sections made from the nickeliferous gabbro contain magnetite surrounded by leucoxene, showing that the unweathered mineral contained titanium. It is well known of course that segregations of iron ore from basic eruptive rocks are usually titaniferous.

THE NICKEL-BEARING MINERALS.

The source of the nickel in the pyrrhotite has been explained in various ways, some supposing that it simply replaces iron in the compound ; others holding that some other nickel mineral is mixed with the pyrrhotite in small quantities, such as millerite, polydymite or pentlandite. Probably all three of these minerals occur ; though millerite has I believe been definitely reported only once from the Copper Cliff mine, where Dr. Peters found it as fine wire-like crystals.[36] Polydymite was found in Sudbury ore by Clarke and Catlett[37] in an examination for platinum ; and pentlandite occurs probably at most of the mines as small patches enclosed in the pyrrhotite, good examples being found at the Evans, Creighton, Worthington and other mines, the platy parting or cleavage and the brassy color distinguishing it from the enclosing pyrrhotite.

In 1892 Dr. S. H. Emmons described three new nickel-iron sulphides from the Sudbury region, folgerite, whartonite and blueite, with amounts of nickel running from 3.70 per cent. in the last to 31.45 in the first,[38] but later writers have held that the determinations were probably in error, mixtures of minerals having been analysed instead of pure materials, or the results of the analysis having been wrongly interpreted. Prof. Penfield considers the folgerite really pentlandite, the blueite nickeliferous pyrite and the whartonite a mixture.[39] Mr. Mickle, who has had much experience in analysing the Sudbury nickel ores, gives the following account of specimens resembling the blueite as described by Dr. Emmons :

[36] Trans Am. Inst. Mining Engineers, Vol. XVIII., p. 282.
[37] Am. Jour. Sc., Vol. XXXVII., 1889, p. 372.
[38] Eng. Min. Jour., 1892, p 609.
[39] Am. Jour. Sc., Vol. XLV., 1893, pp. 493-7.

"A peculiar grayish-green bronze-colored, non-magnetic mineral, which tarnishes to a dull bronze, was found by Mr. McVittie on the location where the Gertrude mine now is. The mineral occurred massive with small crystals of magnetite and specks of chalcopyrite disseminated through it in a streak about six inches wide adjoining the granite. An analysis of the mineral after removing the magnetite gave the following results :

	Found.	Calculated.
Iron	37.28 per cent.	41.48 per cent.
Sulphur	46.54 "	51.79 "
Nickel	5.95 "	6.62 "
Copper	0.10 "	0.11 "
Insol	9.66 "	
	99.53	100.00

Assuming the composition to be $Fe S_2$, Ni S and $Cu Fe S_2$:

41.48 per cent. of iron requires 47.41 per cent. of sulphur.
6.62 " " nickel " 3.65 " "
0.11 " " copper " 0.11 " "

which agrees fairly closely with the amount of sulphur found in the calculated composition, viz.: 51.79 per cent.

Polishing one side of the specimen shows that the piece is not homogeneous but resembles a porphyry in structure, consisting of a groundmass with crystals imbedded in it, the crystals having a more yellowish color than the groundmass. Etching reveals a cellular structure in the groundmass of alternate light and dark lines somewhat like the surface of meteoric iron or certain steels when similarly treated. Surrounding the crystals is always a dark rim. A similar peculiar grayish-green bronze mineral from Calumet island, Ottawa river, came to my notice, containing 2.64 per cent. of nickel ; also one from the ninth level of the Copper Cliff mine, the light colored mineral forming a band in this case. In the examples at hand it does not seem possible to separate the different components in order to analyse each separately. Emmens' blueite [40] with a probable composition of 3.70 per cent. of nickel, 41.01 of iron and 55.29 of sulphur agrees in description with the mixed sulphides just referred to. The percentage of nickel no doubt varies according to the relative amounts of crystals and groundmass."

The fixing of the real mineral which contains the nickel may have an important economic bearing, since pyrrhotite is rather strongly magnetic and the other minerals mentioned are not so, giving a possibility of magnetic separation of the valuable from the useless part of the ore. Experiments carried out by Dr. Barlow and also by Mr. C. W. Dickson show that if the pulverization is fine enough a very considerable, though not complete, separation may be effected magnetically, and the latter shows that the non-magnetic portion has the composition of pentlandite [41]. As there is some nickel retained in the magnetic portion it may be supposed that the mixture of pentlandite with pyrrhotite is very intimate. It is, however, possible that in some cases the nickel is actually contained in the pyrrhotite ; for the crystal referred to before, showing no hint of pentlandite, contains about the usual amount of the metal.

SILVER, PLATINUM, GOLD, COBALT.

The only sulphide mineral in addition to the iron, nickel and copper compounds just mentioned is apparently galena, which occurs in small amounts as narrow seams with a little quartz in ore at the thirteenth level of the Copper Cliff mine, and also in the rock on the dump. The galena may account for part of the silver shown in assays of matte, the rest being contained in the copper pyrites. Galena is reported from the Worthington also.

Arsenical nickel minerals are found in considerable quantities at the same mine, where nickelite and gersdorffite are often associated with the pyrrhotite. The most interesting of the minerals containing arsenic is, however, the di-arsenide of platinum, named by Penfield and Wells sperrylite. [42] It occurs as minute shining crystals isomorphous with pyrite, and was

[40] Jour. Am. Chem Soc., Vol. 14, No. 7; reprinted in Bur. Mines Rep., 1892.

[41] Eng. Min. Jour., 1902, (73) p. 660.

[42] Am. Jour. Sc., XXXVII, 1889, pp. 67-71.

first obtained from the gossan of the Vermilion mine, but afterwards from the McConnell property (now the Victoria mine) a mile or two distant.[43] It may be panned along with gold from the gossan of both these mines, and an investigation of the latter locality by Mr. Mickle in 1897 showed that it was generally distributed through not only the gossan but also the solid ore, his assays demonstrating that the platinum is associated with the copper rather than the nickel ores, though some is found in the latter also. The average of six samples of solid ore gave a trifle over 3 dwt. of platinum and a little gold per ton, while pyrrhotite with little copper pyrites gave considerably less than the average, and one example of ore with much chalcopyrite gave 7 dwt. 12 gr. of platinum and a trace of gold. His highest assay showed 1 oz. 3 dwt. of platinum and 3 dwt. of gold from decomposed ore resting on the solid ore.

These results suggest an appreciable increase in the value of the matte from Victoria mine as compared with the other mines of the district where the amount of gold and platinum in the ore seems to be much less, since these metals and also the silver are concentrated along with the nickel and copper in the matte, and should be recoverable. It is of interest to see that Mr. Dickson found quite a large number of sperrylite crystals in almost pure chalcopyrite from the Victoria mine, but not in the other Sudbury ores examined.[44]

Dr. Walker's analysis of Manhès matte from the Murray mine shows only about 3 dwt. 4 gr. per ton of platinum metals, which is equal to perhaps 1-15 as much in the ore, or about 5 gr.[45]

The Bessemer matte from Copper Cliff seems to contain a higher percentage, equal to about 15 gr. per ton of ore, but much below the results from Victoria mine.

The question of the source and amount of the platinum metals in the Sudbury ores has been investigated by several writers since Penfield and Wells discovered sperrylite. Dr. Walker discusses it in 1896 in the article previously referred to, and Mr. Dickson in 1903, while Vogt compares the ores of Canada and Norway in this respect in 1902,[46] all agreeing that the platinum is chiefly or wholly found with the copper ores. On the other hand Clarke and Catlett found platinum in polydymite from Copper Cliff, containing only .62 per cent. of copper,[47] the amount running from 1.8 to 7 oz. per ton, which would make the polydymite richer than the copper ores of the Victoria mine.

The source of the cobalt found in assays of Sudbury matte, and reported for three years in the returns from certain mines, is no doubt the same as that of the nickel, the two metals being close relatives and usually associated in basic rocks and in meteorites. No rich cobalt ores have been reported from the Sudbury district, perhaps because there has been little secondary rearrangement of the materials of the ore.

In concluding this brief account of the rarer minerals and elements Vogt's results, cited before, may be quoted. He finds little silver or other precious metals in the richer nickel ores; but a comparatively much larger amount in the mixed ores and copper pyrites. His table comparing the contents of Canadian and Norwegian bessemer mattes is as follows, the analysis from the Murray mine being Dr. Walker's, referred to on a former page :

	Murray Mine	Copper Cliff	Ringerike	Evje, Nor.
Nickel	48.82	39.96	51.16	41.50
Cobalt			1.98	0 97
Copper	25 92	43.36	16.41	23.60
Iron	2.94	0.30	10.87	(13)
Sulphur	22.50	13.76	19.58	(20)

[43] Bur. Mines, 1897, pp. 141-2.

[44] Am. Jour. Sc., Vol. XV., 1903, p. 138.

[45] Ibid., Vol. I, 1896, p. 112.

[46] Zeitsch. f. prakt. Geol., Heft 8, X Jahrgang, 1902, pp. 258-260.

[47] Am. Jour. Sc., Vol. XXXVII, 1889, p. 374

Thousandths of one per cent.

Gold	.075	.3 to .6	.05	about .1
Silver	1.775	21	8.5	14
Platinum	.420		.26	about .3
Iridium	.056		about .01	
Osmium	.057	1.5		
Rhodium	trace			
Palladium	trace			

Prof. Vogt states that the proportion of the metals is one part gold to 120 of silver, one of platinum to 30 of silver, one of silver to 5000 of nickel, and one of platinum to 150,000 of nickel. He assumes that the platinum of the Norwegian ores comes from sperrylite also, though the mineral has not yet been found in them. Of late sperrylite has been obtained in copper ores in the southern and western States, so that the mineral is no longer peculiar to the Sudbury district, but is evidently rather widely spread, though in very minute quantities.

With the exception of the oxides and silicates belonging to the original norite or the products of its alteration, such as actinolite or talc, very few additional minerals are recorded from the nickel deposits. Quartz, calcite and dolomite or ankerite occur as later vein formations or filling small vugs. Fluorite and orthoclase crystals are found in granite with sulphides at the Creighton mine, and minute quantities of cassiterite accompany the sperrylite at the Vermilion mine. Graphite shows as a few scales in country rock on the dump at Lady Macdonald mine.

If we omit the small but unique area including the Vermilion, Victoria and Worthington mines, where the native gold and copper, and the arsenical compounds occur, the district as a whole is singularly monotonous and uninteresting in its minerals for so important a mining region.

It is of interest to mention that the rare substance cubanite ($CuFe_2S_4$) has been found by David H. Browne in the roast heaps as one of the products of the roasting process, though it is not known to occur in the unroasted ore.

Development of Mining in the District.

Though nickel and copper were discovered in the Sudbury district in 1856 by Murray at what is now the Creighton mine, undoubtedly the most productive existing nickel mine,[48] no importance was attached to this occurrence as long as the region was inaccessible except by canoes; and the history of mining in the district dates from the construction of the Canadian Pacific railway in 1882, when the ore deposit later called the Murray mine was disclosed. In 1883, the ore bodies of what are now the Stobie and Copper Cliff mines were found, but at first they were taken up for their copper contents, and it was only three or four years later, after a thousand tons of the Copper Cliff ore had been sent away for treatment, that its value as an ore of nickel was established.[49]

The Canadian Copper Company.

The history of mining in the region is largely that of the Canadian Copper Company, which was organised in 1886 and has continued its operations ever since until about a year ago it was merged into the International Nickel Company. During the first 16 years this company drew almost all its ore from three important mines, the Copper Cliff, the Evans, and the Stobie.

[48] Geol. Sur. Can., 1856, p 189.

[49] The main sources of the materials for this historical sketch are the statements of Dr. Bell, Dr. Peters, Capt. McArthur and others who have worked in the region, as contained in the Report of the Royal Commission on the Mineral Resources of Ontario and the Annual Reports of the Bureau of Mines

The first shipments of ore were from the surface opening at the Copper Cliff in 1886, but soon after the Evans and Stobie mines were producing also, and these three were worked almost continuously till 1899, when the Evans was shut down. The first ore taken from the Copper Cliff is said to have contained 15 to 20 per cent. of copper, the ore having been enriched in copper above the water level, below which it gradually ran down to about 8 or 10 per cent. of copper and nickel, which it has retained to a depth of nearly 1,000 feet. It is much the richest of the large mines, and is not yet exhausted ; workings below the thirteenth level showing a continuation of the deposit, with unusually rich nickel ore.

The Evans mine was worked mainly as an open pit, and with the exception of two idle years furnished ore from the beginning of mining operations till 1899 ; and the Stobie mine produced ore with the exception of one year from its opening till 1901 when it was closed down, after supplying the largest amount furnished by any mine in the region. The ore was of special value as it consisted largely of solid sulphides with little enclosed rock matter, and was useful in fluxing the richer but more silicious ores of the other mines.

In 1898 two new mines became producers, No. 1, near what is now the Orford refinery, southwest of Copper Cliff, and No. 2, north of the Copper Cliff ; the former providing rich ore for a year, and the latter average ore, but in much larger quantity.

In 1899 and the two following years, mines No. 4 and 5, northwest of No. 2, provided some ore ; and in 1900 No. 3, often known as the Frood mine, began to supply considerable quantities of ore containing some intermixed rock, making it a profitable flux for the solid pyrrhotite and chalcopyrite of the Creighton mine, which became an important producer in 1901 and still more so in the following year. For some time last summer, 17,000 tons of rich ore were raised per month from the Creighton, making it much the most prominent mine of the district. As its ore is high grade, and can be mined on a large scale in an open pit, it is evident that the prospects of this mine are most favorable. The opening of this great mine has no doubt been one factor leading to the closing down of other mines belonging to the company, still unexhausted but more difficult to work and providing lower grade ore.

The complex metallurgy of these nickel ores need not be treated at length in this report, but in an appendix an account of the practice at Copper Cliff is given by Captain McArthur, so long in charge of the smelters.

As is well known, the ore is roasted in large heaps in the open air until not more than about 7 per cent. of sulphur remains. The roasted ore is smelted in water-jacket furnaces to nickel-copper matte, which may contain from 25 to 40 per cent. of nickel and copper, and which has usually been shipped to the United States for further treatment. Portions of it, however, have been bessemerized to a matte containing 80 per cent. of the metals, and within the last year or two the standard matte has been re-roasted and smelted to a high-grade matte in ordinary furnaces in the Orford refinery.

The old smelter and roast beds were to the east of the mine and the village which surrounded it, but a new smelter is now at work near No. 2 mine, and more than a mile of roast heaps has been put in operation to the north of the new smelter.

The sulphur dioxide rising from the roast heaps has destroyed most of the vegetation for a mile or two around and has injuriously affected the more sensitive plants as far as Sudbury, three miles to the east. The destruction near the roast beds is complete, so that scarcely a green thing survives and the swampy flats have been turned into deserts with white or gray or brown stumps of the trees once growing there. The unpainted houses have taken on a curious brown tinge, and certain colors of the painted houses have suffered. Telegraph and fence wires are rapidly corroded and have to be frequently replaced. The fumes, being free from arsenic, seem to have no ill effect on men or animals, however, the numerous school children, for example, looking plump and rosy.

The tree which withstands the sulphur dioxide the best is the maple, and this may often be found green when all the other trees are reduced to bare skeletons.

The other waste product of the treatment of the ores is slag, mainly a black silicate of iron, which is granulated and removed by pouring into a stream of water. The granulated slag has no binding power and is not well adapted for road making, but answers admirably for railway ballast, so that thousands of tons of it are loaded with a steam shovel on flat cars and removed by the railways. The slag is much heavier than ordinary ballast, holds the ties well, and is almost dustless, according to railway men who have used it. Many miles of track on the Canadian Pacific main line and "Soo" branch, and also on the Manitoulin and North Shore railway are ballasted with this material.

The Copper Cliff roast beds have contained on the average for the last two or three years from 100,000 to 120,000 tons of ore, but in 1902 this had increased to 150,000 tons, apparently as a result of the rapid development of the Creighton mine.

Though the Canadian Copper Company has been assailed in various quarters, it is only fair to state that it has carried on its work in a business-like if somewhat conservative way, and has demonstrated the great importance of the Sudbury nickel district. If good returns have been reaped in the last few years, this is not an unfair reward for its pertinacity in the earlier years when dividends are said to have been lacking.

H. H. VIVIAN AND COMPANY.

The Murray mine is said to have been discovered in a railway cutting when the Canadian Pacific railway was under construction, and was taken up as a copper mine in 1882, thus slightly antedating the Copper Cliff and Stobie mines. It passed into the hands of the famous Welsh metallurgical company, the Vivians, who began to work it in 1889 and continued to do so with one or two short interruptions till 1894, treating the ore in the usual way by roasting in heaps, smelting in water jacketed furnaces to a low grade matte, and bessemerizing this to a high grade matte containing about 70 per cent. of copper and nickel. This was shipped to Swansea, Wales, for final treatment. The Manhés converter was first used in the concentration of nickel matte at the Murray smelter.

Since 1894 the mine has remained closed down, but 5,000 or 6,000 tons of roasted ore were smelted in 1896, the matte being sent to the Whartons of New Jersey.

The ore is said to have contained 35 per cent. of iron, 23 per cent. of sulphur, 2 per cent. of nickel, 0.8 per cent. of copper and about 40 per cent. of matrix. The pure sulphides averaged 3.6 to 3.75 of nickel with nearly one-half as much copper.

THE DOMINION MINERAL COMPANY.

The Dominion Mineral Company owned and worked for some time the Blezard mine, a mile north of the Stobie, and the Worthington at the station of the same name on the "Soo" branch, about 25 miles southwest of Sudbury. The former mine was opened up in 1889, and in the following year the Inspector of Mines states that 50,000 tons of ore had been raised. A smelter was constructed and the ore, after being roasted in heaps, was smelted in Herreshoff furnaces to a matte averaging 27 per cent. nickel and 12½ per cent. copper, which was marketed without bessemerizing. The ore from the Worthington mine which was opened shortly after was partly rich enough in nickel to be shipped direct to market, while the rest was smelted with the Blezard ores. In 1893 the mines were shut down.

Mr. Robert McBride, who was in charge of the Blezard mine in 1892, says that for about a year and a half under his management the mine produced 3,000 tons of ore per month, but he was unable to estimate the amount raised before that. However it seems probable that more than 100,000 tons had been raised before the mine was closed. The ore is said to have

contained 5 to 7 per cent. of nickel and copper, the nickel being more than double the copper in amount, and apparently rivaling that of the Creighton in richness.

The Worthington mine has produced the richest nickel ore in the district, small shipments running it is said from 8 per cent. of nickel upwards, and specimens of nickelite which occur there reach 43 or 44 per cent. The total amount of ore mined up to the present is however small, being estimated at only 25,000 tons.

THE MOND NICKEL COMPANY.

The only other mine worked on a large scale up to the present is the Victoria, formerly the McConnell mine, purchased in 1899 by Dr. Ludwig Mond, the inventor of the interesting carbon monoxide process of separating metallic nickel from copper, etc. In 1901 it began to produce ore, under the management of Mr. H. W. Hixon, and a smelter was erected near the "Soo" line of the C. P. railway. At first the ore was roasted near the village on the railway, being transported 11,000 feet by an aerial tramway, but afterward the roast beds were removed to a point about halfway to the mine, and the vegetation, partly destroyed near the village, is beginning to revive again.

The roasted ore is smelted in much the usual way to a low-grade matte, which is run into bessemer converters and blown until a matte of about 80 per cent. of nickel and copper is produced. This is shipped to the Mond nickel refinery at Clydach, Wales. The works are the most modern and complete in the district.

THE LAKE SUPERIOR POWER COMPANY.

The Lake Superior Power Company has opened up two mines on the main nickel range, the Gertrude about two miles west of the Creighton, and the Elsie just west of the Murray mine. Their work began in 1899 with the Gertrude mine, which at that time showed pyrrhotite with very little chalcopyrite; and it was intended to use this ore for the production of the sulphur dioxide required in making sulphite pulp at Sault Ste. Marie; the roasted ore being afterwards electrically smelted to ferro-nickel. A considerable amount of copper pyrites was encountered later, and at present most of the ore of the Gertrude and also of the Elsie mine is treated according to the methods usual in the district.

Roast beds have been prepared at Gertrude, where the ore from Elsie mine is treated also; and the roasted ore is smelted to matte in water-jacketed furnaces, and bessemerized to high-grade matte.

The Elsie mine has produced 33,835 tons of ore and the Gertrude 16,000.

Several other properties in the district have been more or less developed, and attempts have been made to treat the ores by new methods, but up to the present none of them have been put into operation on a large scale. There are but three companies now producing matte, the International Nickel Company, the Mond Nickel Company and the Lake Superior Power Company.

From the statistics as published by the Bureau of Mines it appears that the average contents of nickel and copper in the matte have slightly fallen off since the earlier years, the average for the whole time being 2.174 per cent. of nickel and 2.146 per cent. of copper. In 1901 the percentages are 1.641 for nickel and 1.552 for copper, but rose in 1902 to 2.54 for nickel and 1.74 for copper. The amount of the two metals lost by leaching during the heap roasting process is not known, but can hardly be negligible, for the ditches near the roast heaps have their water deeply colored after rains; nor have I any accurate data as to the percentage of nickel and copper passing into the slag in smelting; but the shrinkage in the amount of the two metals during treatment seems to be very serious. Estimates of the average contents of the ore

mined in the district as a whole, using the best authorities available, give not less than 2.6 or 2.7 per cent. of nickel and 2.5 per cent. of copper; which would imply a loss of nearly a quarter of the more important of the two metals. We may expect in the immediate future a rise in the percentage of metals in the matte, due to the energetic working of the rich Creighton mine, whose ore is said to run over 6 per cent. of nickel and copper combined.

Up to the present seven or eight of the Sudbury mines have produced over 100,000 tons of ore, four have produced more than 200,000 tons and one more than 400,000; so that in magnitude few other Canadian mines can be compared with them. Although several of the larger mines are now closed down, there is reason to believe that almost if not quite all of them still have large reserves of workable ore.

In all a total of over 1,800,000 tons of ore have been mined in the district, the sulphides making up from 55 to 90 per cent. of the whole, the remainder being intermixed rock, chiefly norite, which however serves as a flux for the sulphides.

PRODUCTION OF NICKEL AND COPPER ORES.

Year.	Ore		Nickel			Copper			Cobalt		
	Tons raised.	Tons smelted.	Tons Ni.	Ni. %	Value $	Tons Cu.	Cu. %	Value $	To's Co.	Co. %	Value $
Before 1890....	100,000										
1890....	139,278	59,329									
1891....	85,790	71,480									
1892....	72,349	61,924	2,082	3.36	590,902	1,936	3.19	234,135	8½	.1007	3,713
1893....	64,043	63,944	1,653	2.21	454,702	1,431	2.38	115,200	19	.0800	9,400
1894....	112,037	87,916	2,570½	2.92	612,724	2,748	3 14	195,750	3¼	.0721	1,500
1895....	75,439	86,546	2,315¾	2 67	404,861	2,365½	2.73	160,913			
1896...	109,097	73,505	1,948½	2.67	357,000	1,868	2.54	130,660			
1897....	93,155	96,094	1,999	2 08	359,651	2,750	2.86	200,067			
1898....	123,920	121,924	2,783¾	2.28	514,220	4,185¾	3.43	268,080			
1899....	203,118	171,230	2,872	1 67	526,104	2,834	1.68	176,236			
1900....	216,695	211,960	3 540	1.67	756,626	3,364	1.58	319,681			
1901....	326,945	270,380	4,441	1.64	1,859,970	4,197	1.55	589,080			
1902....	269,538	233,388	5,945	2.54	2,210,961	4,065	1.74	616,763			
	1,982 404	1,609,620	32,150½	2.174	8,641,631	31,746¼	2 146	3,004,565	30¾		14,613

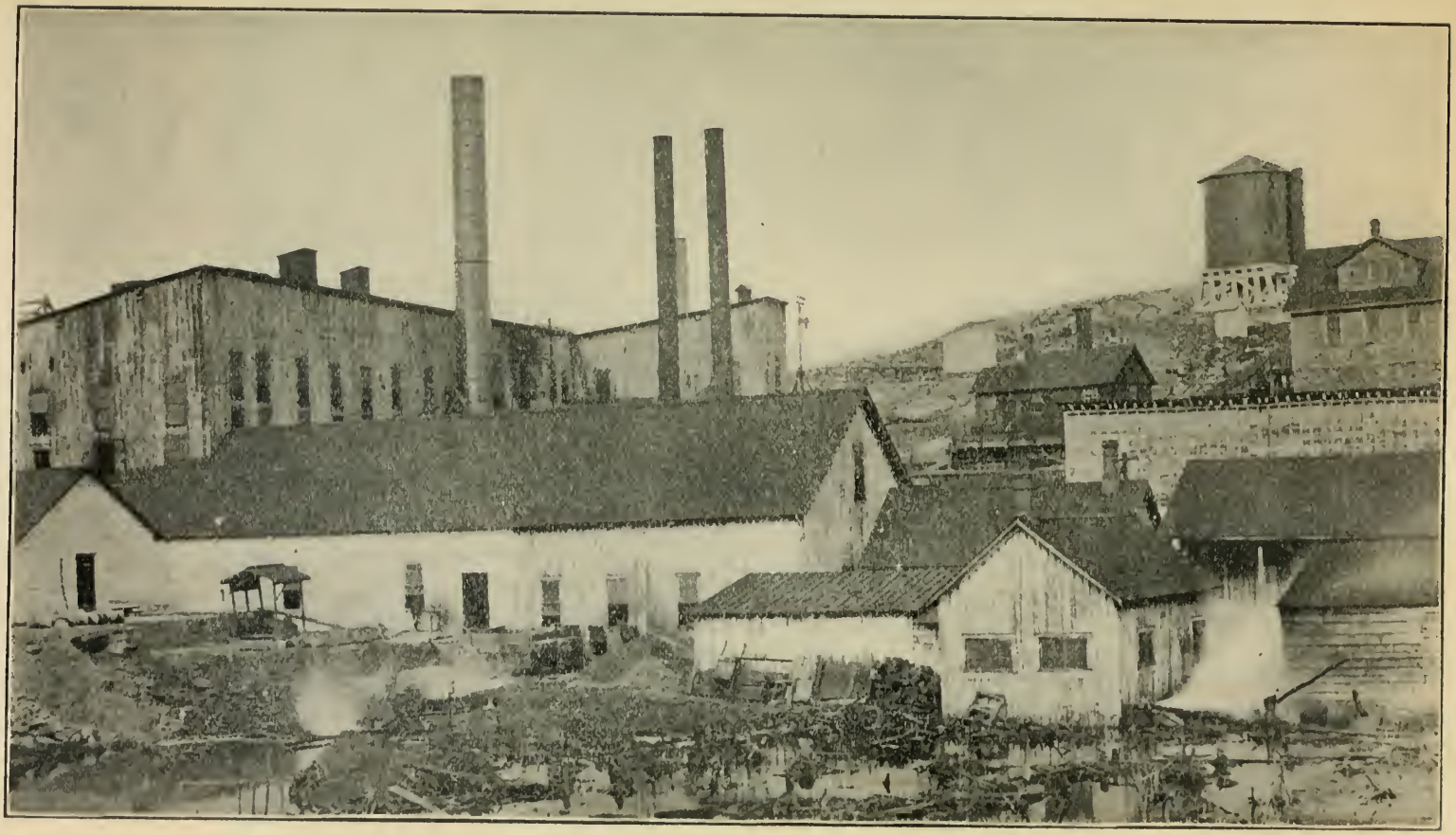
From the figures given above it will be seen that the total ore reported as mined surpassed the amount reported as smelted by 372,784 tons, part of which no doubt represents ore on the roast beds, of which the Canadian Copper Company alone account for about 150,000 tons. 224,000 tons seems, however, a large amount to allow for ore in stock and on the roast beds at the Victoria and Gertrude mines. The 100,000 tons given as mined before 1890 is an estimate for the Canadian Copper Company's mines, and should probably be somewhat increased to allow for ore taken out of the Murray and Blezard mines before that date.

Of the totals given three-fourths or four-fifths of the ore must be credited to the Canadian Copper Company, and probably more than four-fifths of the nickel and copper, since their ores average higher than the others. Only one company gave returns for cobalt, and those were only for three years.

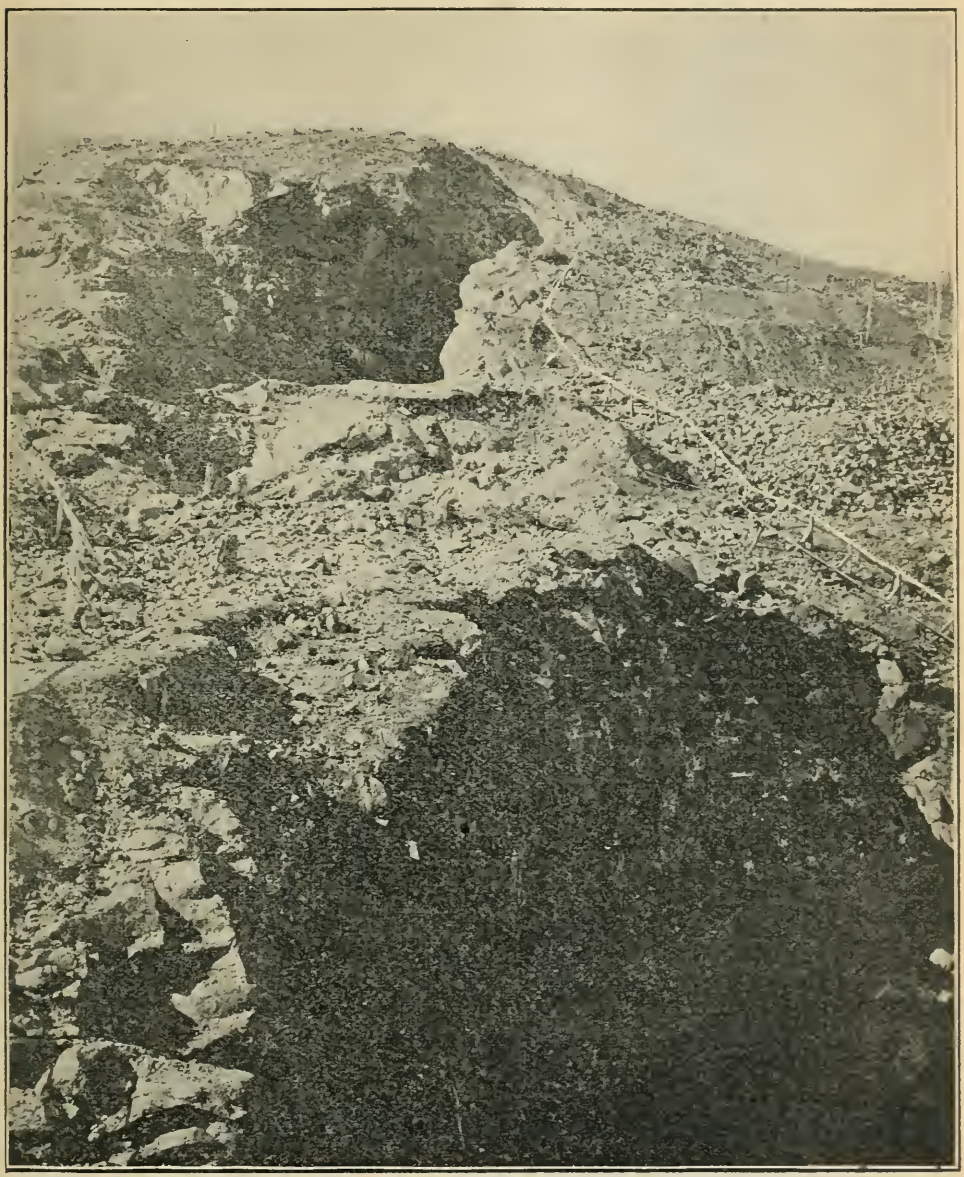
While the International Nickel Company controls most of the largest developed mines in the district, and up to the present has produced probably at least three-fourths of the ore, it should not be assumed that all the important deposits are in its hands, or in those of the Mond or Lake Superior Power Company; for there has been no development work of importance done on the northern range owing to the lack of a railway, though several large outcrops of gossan are known to exist there, and in the drift-covered areas ore deposits of value may

Canadian Copper Company ; West smelter.

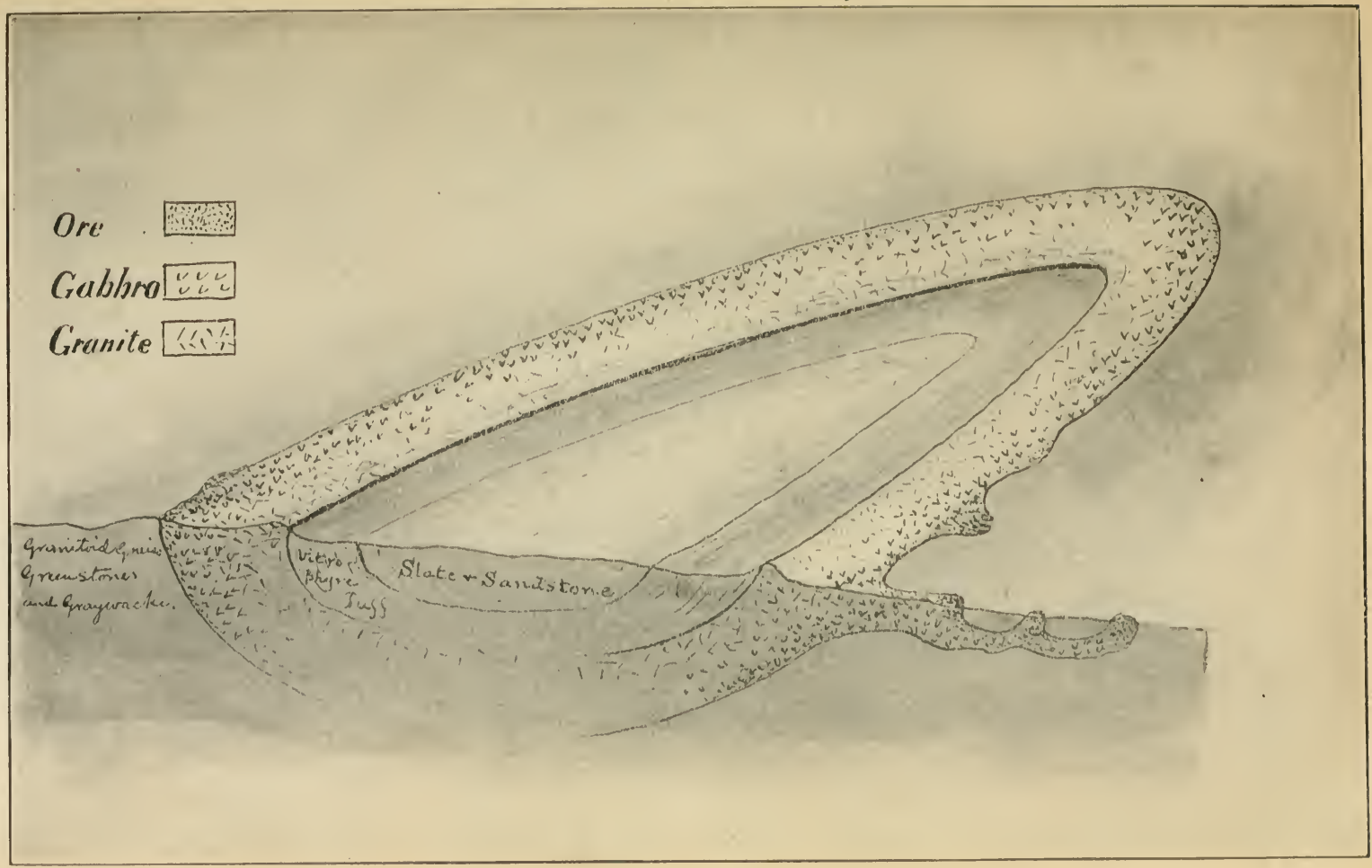
Canadian Copper Company ; West smelter.



Ontario Smelting Works, Copper Cliff.



The Sudbury Nickel Deposits; No. 4 mine from rock-house.



The Sudbury Nickel Deposits: Possible section of Nickel-bearing Eruptive.

yet be found by means of the dip needle. The most elaborate magnetic survey work in the region has been done by Mr. Nystrom, a Swedish mining engineer, for Dr. Mond, but official reports of the results of his work are not available.

A considerable area of the drift-covered tract between Sudbury and Blue lake has been covered by a magnetic survey carried out for Mr. Edison, and Mr. Kay has done some work of the kind for the Clergues, but how successful their results have been is not definitely known, and no reports of large discoveries made in this way have reached the public. It is understood that some of the ore bodies located by Mr. Edison's party will be explored with the diamond drill during the coming summer.

Stratigraphical and Petrographical Notes.

In the introductory chapters of this report the more prominent sedimentary and eruptive rocks were briefly referred to, and it is not the intention to take them up now in detail, but to describe the general field relationships and the microscopic characters of the more important rocks which it was necessary to study in working out the ore deposits and their surroundings. It is expected that a more detailed account of the Sudbury rocks will be given in Dr. Barlow's forthcoming report on the region.

The age relationships of the different rocks have never been settled with entire certainty, though all of them are usually referred to the Laurentian and Huronian, with the exception of the central oval area of volcanic sediments, slates and sandstones, around which the nickel-bearing eruptive has been traced, thought by Dr. Bell to be of Cambrian age.

As the original Huronian rocks have been followed with few breaks in continuity from lake Huron to Sudbury, one would naturally expect the classification adopted north of lake Huron to apply at Sudbury ; but in reality the rocks of the two regions stand rather far apart in their characters. The massive white quartzites, jasper conglomerates and limestone bands of lake Huron are almost entirely wanting, and on the other hand arkoses and graywackés are more widely spread and various schists are quite prevalent. In a general way the Sudbury rocks are more highly metamorphosed than those north of lake Huron, perhaps because the band is narrow, often intersected with eruptives, and enclosed on each side by later eruptive granites and gneisses of the Laurentian.

Quartzites and Graywackés.

Apparently the oldest rocks near Sudbury are certain quartzites or graywackés banded with slate, and gray or flesh-colored arkoses ; the former evidently sandy and muddy sediments of an ordinary type in the beginning, and still showing very plainly the original stratification, lamination and cross bedding ; the latter probably also water-formed sediments, though traces of sedimentation are generally obscure. Typical examples of the two rocks are quite different to the eye, but there are all grades of intermediate rock which often cannot be readily assigned to one or the other type. The two rocks sometimes however meet sharply, the arkose being mixed with the graywacké almost as if it were a felsitic eruptive, though the appearance is probably due to faulting and shearing.

The quartzites and graywackés pass into one another, and under the microscope both are found to consist mainly of quartz and chlorite, or sometimes biotite, the graywacké having also some undefined dirty material between the quartz fragments, which are larger and more irregular than in the other rocks. A thin section from the specimen figured to illustrate peculiarities of bedding shows angular and also well rounded quartz grains enclosed in a matrix largely chloritic but with some quartz and some decayed feldspar. A portion of the finer textured

material showing on one side of the section is chiefly chlorite with very fine quartz grains and black particles, probably magnetite. In another slide sericite (or talc ?) in tiny scales joins the other ingredients.

The arkoses are less satisfactory for study, since many of the sections are to such an extent re-crystallized as to suggest felsites. They are composed of very fine-grained quartz, orthoclase, microcline, oligoclase and biotite, muscovite or hornblende. In some sections hints of waterworn grains appear, but in most there is little to show that the rock is clastic, though the field characters prove that it is so. It is probable that all of the felsites described for Dr. Bell by Dr. G. H. Williams are really arkoses[50]; and some of them, such as that from the Copper Cliff mine, are certainly sedimentary, though the materials may have been in part pyroclastic and so of eruptive origin.

The graywackés and slaty quartzites frequently contain secondary minerals, especially staurolite, as if through contact metamorphism; but the staurolite is now completely rearranged into granular areas of quartz or a greenish scaly material. The crystals are usually stout rods of a whiter color than the enclosing rock, and when they are small and thickly scattered the "rice rock" of the older writings results. Many of these pseudomorphs are, however, large in size, even reaching several inches in length. These white crystal forms, half covering the gray surface, have a very striking appearance, and, though the band of schist containing them is only narrow, it may be followed from point to point for two or three miles in a direction from northeast to southwest near the Frood nickel-bearing offset. The crystals are somewhat rarely cross-like twins, but their sections, with six sides, suggesting the rhombic system, leave no doubt that they were originally staurolite. The bands with crystals are sometimes cut at an oblique angle by the schistosity.

The gray fine-grained gneisses and mica schists of the region appear to be only more completely re-crystallized graywackés; and it is possible, as suggested by Dr. Walker, that some of the gray granitoid rocks of the region are simply reconstructed granites formed of the arkose materials.

A curious variety of the graywacké near Stobie mine contains quite large masses of white quartz having in cross section round or crescent-shaped outlines, often like an eye and eyebrow. How these quartz inclusions, sometimes three inches across, were formed, is hard to imagine. It is as though a concave fracture allowed a rounded layer to rise and drift a little way from the parent mass, the matrix of graywacké being plastic enough to permit of shifting. These eye-like pebbles are found thinly scattered along a band parallel to the one mentioned as containing the large staurolites.

Certainly later in age are the graywacké conglomerates found near Ramsay lake and other points. The matrix is of rather coarser texture than the graywacké referred to above, and shows less banding with slaty materials. Thin sections show a fine-grained matrix of quartz with biotite or chlorite and a little feldspar and magnetite, through which are scattered angular or rounded fragments of quartz of quite variable size, and larger fragments of greatly weathered rocks. The pebbles and boulders include white or red quartzite or arkose and banded slate or quartzite like those described above, probably also binary granite almost free from mica, though the latter boulders may be only re-crystallized arkose. More characteristic conglomerate, though in smaller quantities, runs as a narrow greatly broken band near Stobie mines. The pebbles are well rounded unless where drawn out by shearing, and consist of several different kinds of rock, including granite, quartzite and more than one sort of green schist, as well as greenstone. There are bands crowded with pebbles and small boulders and others freer from them, the whole reminding one greatly of the upper Huronian conglomerate of Michipicoten, though without pebbles of iron-range rocks.

[50] Can. Geo. Sur., 1890-91, p. 67, F, etc.

In addition to the water-formed conglomerates, all the rocks of the district are apt to be sheared into crush conglomerates, which can, however, as a rule, be easily distinguished from those formed by water.

OTHER SEDIMENTARY ROCKS.

The other sedimentary rocks of the region belong to Dr. Bell's area of supposed Cambrian, occupying the space enclosed by the nickel-bearing eruptives. They include three main types of rock—what has been called vitrophyre tuffs, gray clayey sandstones, and black slates. The first rock is dark gray, weathering pale gray, with many small angular pebbles of green, red or white rocks. Thin sections show a greater variety of ingredients than Prof. Williams describes from Dr. Bell's specimens, which seem to have enclosed mainly glass sherds, though chalcedony, quartz and calcite are mentioned also.[51] My sections show in addition to these minerals masses of epidote and fragments of clear plagioclase and of hornblende. The white enclosures appear to be micro-granites, or perhaps re-arranged arkoses, composed of quartz, orthoclase and plagioclase, sometimes having rounded edges and sometimes angular. The glass sherds, as mentioned by Prof. Williams, are now transformed either to chalcedony or serpentine, suggesting, apparently, two kinds of glass, one very acid and the other very basic. I am inclined to think that this rock is only partly pyroclastic, since the pebbles of micro-granite could hardly have a volcanic source.

Resting on the tuffs are dark gray sandstones, or more properly arkoses, rather fine-grained and consisting of quartz grains, decayed feldspars, partly oligoclase, some biotite and a little turbid filling material between the grains. A slight beginning at re-crystallization shows itself about some of the grains, but consolidation has not gone far.

With the dark gray arkoses are black carbonaceous slates with good slaty cleavages crossing the planes of sedimentation, composed of very minute particles of quartz, chlorite, sericite or talc and black specks, probably of carbon. These slates were once bituminous, and fissures in them were filled with liquid or plastic bituminous substances, now changed, as in Balfour township, to irregular veins of anthraxolite.[52] An analysis by Dr. Ellis showed 6.8 per cent. of carbon in the slate.

SCHISTS AND GREENSTONES.

The older sedimentary rocks previously described pass into various pale colored acid schists, such as mica schist and gneiss, probably as a result of contact metamorphism ; the newly formed minerals, especially mica and chlorite, increasing in amount and all evidence of the clastic origin of the rock disappearing. Good examples occur near the Frood mine, consisting of quartz with small amounts of clear feldspar, muscovite, biotite, chlorite and a little magnetite ; and with no suggestion of water-rounded grains in the interlocking minerals. In other cases, for instance east of Stobie mine, the rock comes nearer to a gneiss or felsite schist.

The most important schistose rocks are however dark green and hornblendic, partly very cleavable and partly rather massive in appearance, forming a northeasterly and southwesterly band along much of the edge of the main nickel range. They are probably younger than the quartzite or graywackés, strips of which may be enclosed by them ; but older than the nickel-bearing eruptive and probably than the granitoid gneiss, though the later granite cuts them.

The origin of these schists and greenstones is not very clear, but many of them seem to be greatly weathered and sheared basic eruptives ; others are probably of pyroclastic origin or a mixture of bombs and finer materials with lava flows, all greatly rolled out. Some very siliceous varieties may however be ordinary sediments.

[51] Geol. Sur. Can., 1890-1, pp. 75-6F.

[52] Bur. Mines, 1896, pp. 156—166.

Thin sections of these rocks all contain hornblende, generally also quartz, and often plagioclase or its replacement products, and small amounts of magnetite. The hornblende is often secondary, probably after some variety of augite, though even remnants of the latter mineral seldom occur.

Very fissile green schist from mine No. 2 at Copper Cliff consists of slender prisms of common green hornblende with a very little quartz and plagioclase ; and hornblende porphyrite from near the Orford refinery is made up almost entirely of rather tattered looking interlocking masses of hornblende with a very little quartz and rather more magnetite. Most of the hornblendic rocks however contain considerable quantities of quartz or of plagioclase.

One garnetiferous specimen from McKim township (lot 3 in the fifth concession) consists of about equal parts of hornblende and clear quartz, both apparently re-crystallized and evenly distributed. The hornblende has pale blue, green, and pale brown pleochroism, contains some magnetite, and is somewhat mixed with brown biotite. Some crystals are polysynthetically twinned. In other cases the quartz is gathered into round or oval masses nearly free from dark minerals, somewhat suggesting an amygdaloid, though the often finely granular quartz can hardly have been deposted in an amygdule. An example from north of the Frood mine is crowded with these white pea-like inclusions. The quartz in the light areas forms a rather coarse mosaic, while the darker parts of the rock contain little quartz and are composed mainly of brown hornblende with some feldspar (both plagioclase and orthoclase) and magnetite. How the quartz became segregated in the clear spots is not evident ; but the structure is rather frequently found among the green schists.

Some examples of quartz-hornblende rock, however, lack this regularity, as in specimens from the Blezard mine, where the quartz spreads as large granular areas partially enclosing other minerals. In this rock some plagioclase and apparently also scapolite occur, forming a transition to diorite schist.

At the other extreme are the diorites or diorite schists, in which quartz is present to only a small extent, and a somewhat acid plagioclase with hornblende makes up the rock, as in examples south of the Frood mine, where the plagioclase is oligoclase, the hornblende is accompanied by a little biotite, and there is also some titaniferous magnetite surrounded with leucoxene. To what extent these rocks were originally augitic is hard to say, most of them showing no trace of the pyroxenes, though the hornblende looks secondary.

With the hornblende schists may be placed the small amounts of interbedded amygdaloidal rocks; evidently surface lava flows with ellipsoidal structure due to rolling of the cooling surface. At present these rocks are so completely weathered and rearranged that their original structure can hardly be determined ; but from their appearance we may suppose them to be basic lava flows far older than the vitrophyre tuffs which give evidence of explosive volcanic action on a large scale a few miles away.

With the green schists should perhaps be included the actinolite rocks, not often very markedly schistose, found associated with ore bodies, e.g. at the Worthington, the Evans, and other mines. These tough gray green rocks show under the microscope only pale, faintly pleochroic actinolite with a little brown biotite, chlorite and magnetite, but nothing suggesting feldspar. The hornblende is secondary looking, but what it was derived from has not been determined. The fact that these actinolite rocks occur so often on the rock dumps at mines on the offsets from the main nickel range hints at some action connected with the final arrangement of the ores in these deposits.

GRANITOID GNEISS.

The eruptives of the district appear to be of at least four different kinds and ages, coarse porphyritic granites or granitoid gneisses of a Laurentian type being the oldest ; followed by the nickel-bearing eruptive, ranging in character from norite to granite ; and this succeeded by

fine-grained non-porphyritic granite; and finally by diabase dikes which cut all the other rocks of the region.

Coarse porphyritic granitoid gneiss of rather pale flesh-color rises as lofty hills to the northwest of Copper Cliff, between the nickel mines and the main norite range; and runs with some interruptions southwest to the Creighton and Gertrude mines, the latter part, however, becoming darker and more basic. It is apparently younger than the greenstones and green schists, since it encloses masses of them and sends projections into them.

Sections of the rock near Copper Cliff consist chiefly of quartz, and microcline with less orthoclase and oligoclase, as light minerals, and a rather small amount of brown biotite. The quartz and to a less extent the feldspars are somewhat crushed. The stone has been used in the new offices of the Canadian Copper Company and makes a handsome building material. A little purple fluorite occurs in it.

Toward the southwest the granitoid gneiss is much mixed with basic rocks and seems to have absorbed some of their materials, becoming less quartzose and darker in color. At Creighton the rock is red to gray with large flesh-red porphyritic orthoclases, often Carlsbad twins, and a considerable quantity of hornblende as well as biotite. This rock forms a large part of the wall of the ore body, and at the margin is often much impregnated with ore. Where the norite comes in contact with the gneiss it grows somewhat finer in grain, evidence that the gneiss was at least partially cold before the norite was erupted: however, at the immediate contact the feldspars of the gneiss are apt to be pegmatitic for an inch or two, as if there had been interaction between the two rocks.

The granitoid gneiss has the appearance of a Laurentian rock, and I see no reason why it should not be included with the Laurentian. It cuts the schists and quartzites of the Huronian in the same way as Laurentian gneiss does Huronian rocks in other regions.

THE NICKEL-BEARING ERUPTIVE.

The nickel-bearing eruptive has been described by previous writers, especially by Dr. T. L. Walker,[52] who have shown that unweathered specimens from near the outer edge of the band are quartz norites, consisting of quartz, plagioclase (bytownite), hypersthene, augite and a little hornblende and biotite. The feldspar which makes the bulk of the rock is rather dusty and brownish in appearance, and the quartz is apt to be blue. The structure is in general that of a gabbro but with an inclination to the ophitic, indicating relationship to quartz diabase. The hypersthene never contains the minute plate-like inclusions usually found in that mineral, and the pleochroism is often so faint that the mineral should rather be called enstatite.

While the freshest material is undoubtedly norite, the great majority of specimens no longer show any rhombic pyroxene, but only secondary hornblende, so that the name diorite given to the rock by the early geologists is not an unnatural one. In fact by far the larger number of my own thin sections contain no hypersthene or enstatite, and in the earlier part of this report the general name gabbro has often been used, since while the hornblende evidently replaces some kind of augite, it is not certain that the original augite was mainly rhombic. Out of thirty-one thin sections of gabbros from the main nickel range and its offsets only seven show with certainty any rhombic augite, and even these are usually in very poor condition. The hand specimens were chosen as the freshest to be seen near the ore deposits, and probably show a larger proportion of norites than the average. Professor Walker has found norites still containing rhombic augite immediately at the Murray mine, probably where Von Foullon's specimen came from, at one point between this and Rayside, north of the Blezard mine,

[52] Quar. Jour. Geol Soc., Vol LIII. (1897), pp. 40-66

and best of all in the Windy lake eruptive on the opposite side of the oval area. My specimens come from Mount Nickel, the Stobie, Little Stobie, Creighton and Gertrude mines, but the majority of the examples of gabbro from the same localities no longer contain rhombic augite. It is of interest to note that most of my specimens containing hypersthene or enstatite are from the immediate margin of the ore, often in fact containing scattered particles of ore, showing that the presence of ore does not imply decomposition of the rock, and hence that the ore was not secondarily deposited.

Professor Walker has been good enough to allow me to compare his thin sections with my own, the most characteristic being from near Onaping in the Windy lake area. One of these has the hypersthene in much better preservation than any in my own sections, though one or two of the coarser textured examples from my collection are much like them. As Professor Walker's description is excellent there is no need to re-describe them here.

A section of rock from the Creighton ore body enclosing small portions of the sulphides comes closest to Professor Walker's best slides, but differs in some respects. Among colorless minerals, it includes a little quartz, a considerable amount of microcline and a larger amount of plagioclase; among dark ones, a good deal of hypersthene and about as much green hornblende, the latter often enclosing the former and evidently derived at least in part from it. The presence of appreciable quantities of potash feldspar (microcline) marks this rock off from most of the norites, and suggests an intermediate rock between the ordinary quartz-norite and the granitic phase of the eruptive.

In a section from the Gertrude mine the hypersthene is so faintly pleochroic that it may perhaps better be called enstatite, and with it there is a good deal of augite in clear grains, but no microcline. In another section from the same mine containing sulphides the rhombic augite, though far gone in weathering and not at all pleochroic, still shows parallel extinction. With it is secondary hornblende and biotite; and the feldspars are very brown in color.

A slide from Stobie mine consists in nearly equal parts of dark and light minerals, the former mainly very faintly pleochroic enstatite with some diallage, the latter no doubt originally feldspar but now completely changed to an aggregate in which no twin lamellae can be distinguished.

VARIETIES OF THE NORITE.

Besides these coarse-textured rocks with rhombic augite however, there are examples of very much finer grain and of a different type. Some of the marginal parts of the norite include gray, very fine-grained slabs and fragments quite unlike the main rock both megascopically and microscopically, the whole sometimes looking like a breccia or conglomerate, so crowded are the fragments. In the best example, which is from near Little Stobie mine, the matrix is of moderately coarse-grained norite of the kind previously described, consisting of plagioclase, stout prisms of hypersthene and a very little hornblende and biotite; but the portions of the two fragments contained in the slide are quite different. One is formed almost exclusively of a very granular mixture of plagioclase and hypersthene, the latter making about a quarter of the whole, and both being unusually fresh. The other fragment is wholly of plagioclase (labradorite) in small crystals of about equal diameters with a little magnetite, and must be named anorthosite.

A thin section of a dark green, almost compact rock from the dump of the Mount Nickel mine is of a somewhat similar kind to the first included fragment just mentioned, but is still finer-grained It consists of about equal parts of faintly pleochroic hypersthene and plagioclase, with a considerable amount of magnetite. Whether this represents the quickly cooled edge of the norite at Mount Nickel or is a fragment of included rock is not certain; but rather similar specimens, though more weathered, come from the edge of a nickel ore body between

Joe's and Clear lakes in Wisner township (W. D. 16). Sections show about equal parts of pyroxene (enstatite and diallage) and plagioclase (labradorite), the dark minerals being partly rearranged into fibrous greenish material, apparently hornblende. The feldspar is often in small, nearly square crystals made up sometimes of two halves, but frequently of several twin lamellae. Pyrrhotite occurs in three of the four slides.

The only specimen taken from a position where its surroundings were clear, is from a hill which stands a little southeast of the boundary of the ore body at Murray mine, and is marked by thin ridges of green rising from a surface weathering pale green gray. Fresh surfaces are darker greenish gray, and in the field work the rock as a whole was taken for part of the band of schists and greenstones running beside the nickel-bearing eruptive. Thin sections however show a very different rock from any others collected as belonging to the band of green schists, since they are formed, like some of the included fragments from Little Stobie, of hypersthene and plagioclase with magnetite. The minerals are in very small crystals of equal diameters, and the two main ingredients are present in about equal amounts. The hypersthene is distinctly pleochroic and is scarcely at all changed to hornblende in most places, though that mineral is present in large quantities in the thin green bands which appear to represent fissures where water could circulate, bringing about the change from hypersthene to hornblende. This occurrence would seem to indicate an older, finer-grained set of norites near the edge of the nickel-bearing norite ; but more field work is needed to settle the matter positively.

It is hardly necessary to describe the different phases of the weathered norites or gabbros associated with the ore bodies. Usually only the augites have undergone rearrangement, and the feldspars, though somewhat brown and dusty in appearance, are for the most part surprisingly fresh for rocks in which the bisilicates have so greatly suffered There are generally quartz(often pegmatitic),biotite and leucoxenic iron ore in addition to the secondary hornblende and basic plagioclase. Along the margin of the main range the rock is generally coarse-grained and fairly uniform in character, but the actual edge against the older granite or gneiss is often somewhat finer-grained.

The dike-like off-sets from the main range are, as might be expected, somewhat finer-grained on the whole and more variable, though in almost all cases somewhere near the ore bodies the customary speckled rock containing some quartz and biotite is to be found, though often in sparing amounts and greatly mixed up with brecciated country rock. Hypersthene or enstatite is very seldom preserved in the off-sets, the only instance of its occurrence in my thin sections being from Stobie mine.

GABBRO OF COPPER CLIFF OFF-SET.

The off-set, including the Copper Cliff mine, was studied most carefully and may be mentioned as a characteristic example. The band of norite or gabbro is continuous from the main range past Clara Bell and Lady Macdonald mines to mine No. 2 ; and where the contact with the granitoid gneiss is exposed the texture grows finer toward the edge and almost compact at the very edge. Thin sections show in the finer-grained portions just the same minerals and usually the same relationships as in the coarser-grained rocks ; though the finest-grained of all, taken from the boundary of the granitoid gneiss near the open pit of mine No. 2, has a hint of the ophitic structure. However, all the thin sections from this point and the Copper Cliff are quite different from those of the adjacent diabase dikes, containing quartz in triangular spaces between the feldspars or intergrown with them as micropegmatite, and also biotite, but never olivine. Sections from the Worthington and Victoria mines off-set have the same characters, though they are very fine-grained ; but the few thin sections made from the neighboring Vermilion mine show rocks of a different type. A specimen of the latter rock sent by Mr. G.

R. Mickle to the late Prof. Stelzner, of Freiberg, was described by him as a "compact brown rock, originally mica schist, consisting essentially of quartz, brown mica, very little triclinic feldspar and some epidote."

The areas of gabbro unconnected with the main nickel range have not been carefully studied, but the laccolite east of Sudbury and its southwest prolongation towards Kelly lake have much the same characteristics as those described. A specimen from the hill top east of the town is a typical norite, made up essentially of faintly pleochroic enstatite, or hypersthene and plagioclase, the latter somewhat lath-shaped.

A specimen from near Ramsay lake is much more weathered and no longer retains any augite, green hornblende replacing it. The plagioclase too is greatly weathered and contrasts with the clear quartz filling spaces between the crystals. A section from south of the Evans mine is like the last one, but with fresher plagioclase and a considerable amount of quartz in micropegmatitic intergrowth with it. This mass of altered norite is associated with small outcrops of pyrrhotite and chalcopyrite which appear to occur, not at the edge but more or less in the centre of the area.

It may be mentioned finally that gabbro containing hypersthene has been found in other parts of the Province connected with pyrrhotite and chalcopyrite deposits, e. g. at lake Massagamashine, near Loring, south of lake Nipissing. The rock is coarse-textured, dark brownish gray, mixed with sulphides, and consists of plagioclase, diallage, hypersthene and some garnet as reaction rims between the plagioclase and pyroxene.

The norite associated with the nickel ores merges inwards into a curious micropegmatitic rock which has been described already from various localities, and need not be taken up at length here.[53] Professor Walker's account especially gives a clear idea of the gradual change from quartz-norite to porphyritic micropegmatite and finally hornblende syenite or granite. The micropegmatite was called syenite in early days, but really contains too large an amount of quartz to retain the name, the bulk of the rock as seen in thin sections being composed of a marvellously elaborate intergrowth of quartz and feldspar radiating usually from a well formed crystal of plagioclase.

This differentiation does not occur, at least on a large scale, in connection with the smaller gabbro areas, such as that east of Sudbury; though towards the centre of these laccolithic masses there may be a segregation of small bodies of very coarse white rock consisting of feldspar alone, of feldspar intergrown with quartz, or of quartz alone. The best examples I have observed are south of Copper Cliff on the ridge near Kelly lake, where a broken band of this material runs for half a mile or more along the crest of the ridge. At one point pure quartz was quarried some years ago for use as a flux in the Bessemer converter.

Frequently there is a transitional rock between the ordinary gabbro and the quartz-feldspar mass, consisting of a very coarse mixture of hornblende and feldspar of a more or less pegmatitic kind.

The white feldspar rock, as seen in thin sections, contains about equal amounts of striated and unstriated feldspar with small quantities of quartz, so that the name anorthosite is hardly appropriate, nor does the name granite seem to fit the case. The intergrowth of quartz with the feldspar is often very coarse, like graphic granite, so as to be easily seen with the naked eye; and this passes in some places rather sharply into solid glassy quartz.

LATER GRANITES.

While the granitoid gneisses appear to be older than the nickel-bearing eruptive, there are later, finer grained granites which cut the norite. They are usually flesh-colored but some-

[53] Geol. Sur. Can., 1890-91, p. 78 F.; Can. Rec. Sc., Apr 1893, p. 345; Quar. Jour. Geol. Soc., Vol. LIII (1897) p. 53-58; Sum. Rep. Geol. Sur. Can., 1901, 143-4.

times gray, and form large elongated masses rising as hills between Murray mine and the Frood, for instance ; or extend as dikes six to ten feet wide as may be seen at Copper Cliff and mine No. 2. Few sections have been made of these rocks and they are not of great interest and need only a brief description. They are granular rocks made up chiefly of quartz, orthoclase, microcline, a little plagioclase and a little biotite.

There is a possibility that the granitoid gneiss, the nickel-bearing eruptive and the later granite are of common descent and do not differ very greatly in age, the granitoid gneiss having been separated first and the later granite last : but the field evidence inclines me to keep them separate, and the fact that the two granite rocks carry no ore bodies is against connecting them with the norites.

Some quartz syenites, fine-grained grayish red rocks, at Creighton and between it and Gertrude are perhaps of the same age as the flesh-red granites, but differ from them in containing only a little quartz and having hornblende instead of biotite.

DIABASE DIKES.

The latest rocks of the district are the diabase dikes which intersect all the others, running sometimes for miles in a fairly direct line across country, as between Murray mine and Ramsay lake. The aggregate number of these dikes, large and small, must be very great, since at single mines, as the Creighton, there may be five within 100 yards ; and the size varies from a few inches or less in width to more than 300 feet. In our work only those appearing at or near the ore bodies have been studied, and no attempt has been made to trace the larger dikes for any long distance, as Dr. Barlow has devoted considerable time to their study. Even at mines where no dike has been observed on the surface, dikes must often really exist, for blocks of diabase are usually to be found on their rock dumps.

The dikes at or near the Creighton mine are perhaps most interesting, since the great open pit shows their relationships very clearly, as has been mentioned in the description of the mine. The most curious feature is the boulder-like projections from some of the dikes into the ore as if oval cavities existed into which the molten diabase porphyrite could be squeezed.

Most of the dikes are of olivine diabase porphyrite, coarser-grained in the middle and very fine-grained to compact at the edge when in rock, but frequently with a very narrow rim of glass when coming against ore, as if chilled more suddenly by so good a conductor as the sulphides. The thin shrinkage cracks on the chilled surface are filled with a film of secondarily deposited sulphides, usually copper pyrites. The porphyritic feldspars are broad flat plates reaching a greatest length of about half an inch. A thin section shows the characteristic ophitic structure of olivine diabase, which need not be particularly described, reminding one greatly of diabase porphyrite dikes from the north shore of lake Superior.

In addition to the dikes from four inches to 3 or 4 feet in width shown at the open pit, there are much wider ones, e.g., along the railway east of Creighton, showing naturally a much coarser texture, in which the porphyritic crystals are not conspicuous. These are much like the great dikes near the Murray mine. The augite is red brown and not appreciably pleochroic ; while the olivine, present in equal amounts, is clear and very little weathered.

Another type of diabase, much more weathered and perhaps older occurs at Creighton, finer-grained, greenish in color and not porphyritic. This may be seen in a nearly horizontal dike near the winze in the open pit, and also on a wood road half a mile to the north, in the latter case cutting the granitoid gneiss. Thin sections show no olivine or augite, the latter being replaced by hornblende and a little biotite ; and it is possible that these dikes are really off-sets from the norite, weathered examples of which they resemble in composition, but no ore seems to occur in them.

The diabase dikes near Copper Cliff have been studied in detail by Dr. Barlow, and also those near Murray mine, so that mention need not be made of them here. Specimens of coarse-textured olivine diabase were collected at Blue lake and were supposed to be country rocks of the ore deposit, but they no doubt really belong to large dikes whose relationships are obscured by drift deposits. Thin sections are beautifully fresh, and show large amounts of both augite (red brown) and olivine, with a little brown biotite, especially near large magnetite masses or crystals.

That the diabase dikes are much later in age than the rocks they cut is evident, but their actual age is uncertain. Their resemblance to the lake Superior dikes, which are held to be the channels through which the basic Keweenawan lavas reached the surface, suggests that they also may be of Keweenawan age, though no wide-spread eruptive sheets like the Keweenawan copper-bearing amygdaloids are known in the Sudbury district.

It is of interest to note that Dr. Walker found 0.0295 per cent. of nickel oxide in the large dike at Murray mine[54] Dikes of augite porphyrite described by Professor W. G. Miller from the County of Frontenac were found to be much richer in nickel, which appears to have been contained in titaniferous magnetite, since the amount of sulphur present (0.16 per cent.) is too small to form a sulphide with the 0.612 of nickel.[55]

From the foregoing description of the rocks of the Sudbury district it will be seen that the probable succession in age is as follows, in ascending order:

Keweenawan (?)—Dikes of diabase.

Younger granite.

Nickel-bearing eruptive; norite; micropegmatite; granite.

Animikie (?) or Upper Huronian (?)—Oval area of tuffs, sandstones and slates overlying the preceding.

Laurentian.—Granitoid gneiss.

Upper Huronian.—Green schists and greenstones.

Arkoses, quartzites and graywackés.

It can hardly be said that the precise age of any of these groups of rocks is known, though they probably range from the base of the upper Huronian to the Keweenawan, including the Laurentian as later than Upper Huronian. No rocks undoubtedly of Lower Huronian age are known from the nickel district proper; though the ranges of banded silica and magnetite extending through Hutton and Wisner townships to the north of the nickel area evidently belong to the upper part of the Lower Huronian[56]. The latter rocks occur entirely enclosed, so far as known, in granites and gneisses, generally considered Laurentian, and have not been found in direct connection with the rocks here described.

Moose Mountain Iron Mine.

For a number of years magnetite has been known to exist north and northwest of lake Wahnapitae, but little attention was paid to it until 1900, when Messrs. Taylor and Terry took up iron locations in Hutton township at what is now the Moose Mountain mine. The iron range was first noticed by Mr. Taylor while prospecting for placer gold on the west fork of Vermilion river, where the banded silica of the range forms a rapid with a fall of about ten feet, which has been named the "Iron Dam."

The banded silica is not very rich in iron at the Vermilion, but on the steep hills rising above it the amount of magnetite increases. The range is said to be 300 feet wide, but not

[54] Quar. Jour. Geol. Soc., Vol. LIII. (1897), p. 63.

[55] B.A.A. Sc., Toronto, 1897, pp. 660-1; and Bur. Mines, 1897, pp. 230-2.

[56] Bur. Mines, 1901, p. 186.

nearly the whole of it can be called ore. At the river the banded silica strikes a little west of north and dips about 70° to the east, but bends toward the northwest where the stripping has been done and dips nearly vertically. The general direction of the range is said to be about northwest and southeast. The work done in July last consisted mainly in stripping, but a diamond drill was then being got ready for work on a hill top rising according to an aneroid reading 180 feet above the river. The stripping exposed ore for a length of 270 feet and for a breadth of 25 or 30; but the amount of magnetite contained in it varied greatly, and some parts seemed to be too lean to be of value, though even these were said to assay 40 per cent. of iron, while the richer parts would reach about 60 per cent.

The stripping disclosed characteristic iron range rock of interbanded white or bluish silica and magnetite with little pyrite so far as seen, and few other substances except a little chlorite. It was richer in magnetite than any other portion of the iron range which I have visited, the nearest approach to it being a small outcrop not far from Fort William, near Murillo station; and so far as could be inferred from such a superficial examination there is a very large amount of the ore, since it may be supposed to go down for at least 180 feet, to the level of the river, and probably to a much greater depth. This is apparently the only instance in the Province, and, so far as I am aware, in the Great Lakes region, where the original iron range rock is rich enough in the metal to be counted as an ore on any large scale. All other ore deposits connected with the banded silica are of a secondary nature, and represent local enrichments due to leaching of iron from higher portions of the range.

The country rocks of this iron range are greenstones, green schists and granite, and it appears to be completely separated from the nickel range to the south and its accompanying sediments and eruptives.

The mine was under the management of Mr. Chase S. Osborne of Michigan in July, and later was visited and reported upon by Dr. C. K. Leith of the U. S. Geological Survey, but the results of the development have not been made public.

METHODS OF METALLURGY AT COPPER CLIFF.

BY JAMES M'ARTHUR, GENERAL MANAGER CANADIAN COPPER COMPANY.

The following is a brief summary of operations up to the stage of standard or first crude matte as practised at the Copper Cliff departments of the Canadian Copper Company's works.

Open air heap roasting, as practised at the present time, is under fair weather conditions though a fairly profitable process, an old, crude and very simple mode of treatment for the elimination of sulphur from low-grade sulphur ores, i.e., ores having too low sulphur contents to make it profitable to save the latter by any treatment at present in use, the sulphur contents running from 15 to 25 per cent. and iron from 35 to 50 per cent. The roasting and heap building operation is easily learned by any reliable and intelligent man, anxious to work to the letter of the plain instructions given him, who takes no uncertain chances or anything for granted, but one who desires to learn the why and wherefore for everything done. Such a man makes an ideal roaster and generally gives good satisfaction: the more so if he displays good judgment in the handling and supervision of his men.

The sulphur fumes generated from our heap roasting are non-poisonous, being free from arsenic, lead, antimony, zinc, etc., though in dense volume they create when inhaled a slight strangling sensation, which soon disappears. As a whole we find them more beneficial than otherwise, though disagreeable. Our men keep robust and healthy, with good appetites, and

there is an entire absence of consumption diseases among permanent residents. Indeed, I have yet to learn of the occurrence of any case of this kind during the past fifteen years, or since operations first began.

Mining the Ore.

The ores from the different mines, in large lump form with considerable fines, are hoisted in large skip cars to the top of the rock house, where they are automatically dumped on to a large, inclined "grizzly" sizing screen, which separates the fines from the coarse ore. The latter falls in front of large Blake crushers, each of 400 tons daily capacity, into which it is fed, crushed and broken to the requisite size for heap roasting. It is then discharged and fed into the upper end of slightly inclined horizontal revolving trommel screens, from which it is discharged in three different sizes—fines, raggin and coarse. The first two escape through their respective mesh-holes in the trommel screen, while the last discharges through the lower and open end of the trommel on to oscillating sorting tables, also slightly inclined lengthwise, the shaking motion of the table causing the crushed products to travel at such a speed to the discharging end as to give a large number of boys stationed along the sides an opportunity to pick out much of the associated barren rock on its passage to the receiving bins.

From these the ore is automatically loaded on standard gauge cars and hauled by locomotive engines, in trains of 400 to 500 tons each, to the roasting yards, the latter covering an extent of carefully graded, prepared and drained ground, about 150 by 7,500 feet, with a roasting capacity of 250,000 tons of ore, more or less, according to the height of the heap.

Roasting out the Sulphur.

Here the plans of the heaps, rectangular squares of 60 by 125 feet, are laid out on the prepared ground. This, when an excess of ore fines is in stock over and above the usual requirements necessary for covering the finished heaps preparatory for firing, is covered to a depth of a few inches with the surplus fines, which after two or more heaps have been roasted on top of them get roasted and caked together, then are broken up and smelted as coarse ore.

On the top of these fines, if any, or on the prepared ground if absent, is laid a bed of dry cordwood 9 to 18 inches deep. The fuel bed being finished, coarse ore to the extent of about 65 per cent. of the total ore heap is first transferred from the loaded cars and built roughly and evenly on the prepared fuel bed, followed by the ore raggin (nut size) and finally by a complete covering of ore fines. No chimneys or top vents are now used, long experience having shown that chimneys are detrimental to good roasting, causing heavy matting of the ore to take place in their immediate vicinity, notwithstanding the closest care to prevent it. The green ore heap now being built and finished and nothing but a few kindling holes being still exposed at intervals all round the base of the heap, these are simultaneously ignited and the heap has commenced its long roasting operation. These openings are also covered over with green ore fines as soon as the cordwood has burned to glowing charcoal.

All carbonaceous fuel in large heaps like these, though so well covered and protected from the air, is burned out in about 60 hours after lighting up. A complete oxidizing roasting process then begins and continues until the end, namely, until the sulphur contents are so far reduced and burned off that there is not sufficient left to promote further combustion. The remaining proportion, generally about 7 per cent., is enclosed and sealed up in non-porous portions of ore or matte, the semi-fused covering of which would require to be rebroken in order to expose fresh faces under heat and liberate the remaining sulphur. This could only be done by turning over and re-roasting the ore after the first roast was finished, but it is not at all necessary, as the remaining sulphur is essential in the smelting of the ore in order to produce a clean slag.

A heap after being fired up is constantly and carefully watched on both shifts for the first few days, *i. e.*, during the period of its settling caused by the burning out of the fuel bed underneath, and all vent holes created by this disturbance are covered over as soon as formed by throwing on a little fresh ore fines. This is to prevent too great a generation of heat which would kill all roasting by fusing the heap into matte. These precautions being taken, the ore heap is left to itself for the next few months, the duration of roasting operations being in proportion to the tonnage contents of the roast heap.

The smaller the heap, the smaller the coarse portion of the ore should be broken for good roasting ; for a heap of 800 to 1,000 tons not much over ordinary egg size, which should burn out in 35 to 40 days ; a heap of 2,500 tons roasts best with ore sized to pass a 3-inch to 3½-inch mesh, and will roast out in 100 to 115 days, while a heap of 4,000 tons will roast well with ore meshed to size of brick bats, and under favorable conditions of weather, etc., will roast for seven months. The longer the period of roasting the less the matting ; the larger the heap the less of the outside margin or covering is left only partially roasted. The loss by solubility and seepage from wet weather is less than the loss in valuable ore float dust occuring in the rabbling and roasting of similar material in the calcining furnaces. After the heaviest and most prolonged rainstorms I have never found moisture as deep as 24 inches through the covering of one of these heaps ; below that the bed would be dry to dustiness.

The sulphur contents of these ores, as already stated, are not in sufficient quantity to recover and save, as it would cost more than their market value to do so, and there is not a firm operating a nickel mine in Ontario at the present moment but is treating raw ores by heap roasting, the sulphur going to waste, as some term it. I know of no chemical firm making acids, here or in the United States, who ever profitably recovered sulphur from ores carrying less than 30 to 34 per cent. sulphur.

A roast heap once fired up and fairly started to burn, requires no further expense or attention until cold enough to remove to furnaces months after. It is a cheaper, more expeditious and less intricate process than the old and now generally abandoned system of stall roasting. The one better feature in stall roasting is the greater absence of sulphur fumes among the men engaged in handling the ore, but vegetation suffers just as much from stall as it does from heap roasting.

Smelting the Roasted Ore.

The ore when roasted clinkers and centres together in great lumps, and when cold is loosened and broken up by powder and pick into the requisite size for smelting, loaded on large side-dumping cars and hauled by locomotive engines to the different stock sheds and bins at the furnaces. There it is sampled, mixed and made into smelting charges and fed into furnaces.

Each furnace charge consists of 7,000 pounds, the coke being about 14 per cent. of the total charge. Half the coke is first charged into the furnace followed by half the ore, then the remainder of the coke and ore. The blast used is delivered at the tuyeres at a pressure of about fourteen to sixteen ounces per square inch. Each furnace, of which there are thirteen installed, is provided with a wind bustle and twenty-five two-inch tuyeres ; the total capacity being about 1,800 tons per day.

The furnaces are water-jacketted and built of open hearth, soft steel plates about nine feet in depth, with a side flare of 6 inches from tuyeres to charging doors, encircled by wind bustle and twenty-five tuyere holes, each of a diameter of 2¼ inches. The feeding and molten discharge of furnaces is continuous, the molten stream escaping from an opening in front, near the bottom, thence through a similar opening into the forehearth or settling well. Here the specific gravity of the contents causes the matte to settle to the bottom and it is periodically

drawn out into pot moulds, sampled, cooled off and weighed, loaded on cars and shipped to the refinery.

The slag as it separates in the settler rises rapidly to the top and flows over the lip of the settler in a continuous stream on to a granulating chute, in quiet contact with a stream of water that has already done duty in the jacketted walls of the furnaces and flowing through the chute in the same direction as the stream of molten slag. The latter is granulated and flushes off to the waste dump or into the elevator pit, where the water filters off and the slag is elevated into high waste heaps. From these heaps road makers and railroad companies help themselves freely, loading the slag with steam shovels for the ballasting of tracks, etc., for which it is well adapted ; being heavier than gravel ballast and non-porous, it does not retain water and therefore does not freeze deep in winter and heave up tracks as does sand ballast.

Each furnace is operated by a No. 7 Connorville pressure blower, discharging 67 cubic feet of air blast per revolution and making from 90 to 130 revolutions per minute, each blower being driven by its own directly connected engine of 50-h.p.

The matte product from the first smelting of roasted ore in these furnaces is always termed standard matte, to distinguish it from converter or Bessemerized matte. When this latter grade is called for, which is not very frequently, the standard matte is smelted and tapped in the required charges into the Bessemer converters, where a high pressure of air blast is blown through the molten bath of metal, until practically all the iron is oxidized, and taking its flux from the silicious lining of the converter is skimmed off in a very fluid slag. At this stage the charge has been blown to finish, i.e., the standard matte charged at 35 to 40 per cent. metallic contents is blown or converted to a grade of 80 per cent. This is as far as the Bessemer operation can be carried without an immense loss in the nickel contents of the product, caused by the nickel to some extent following the action of the expelled iron and fluxing itself from the silicious linings.

At this stage the sulphur contents will still reach as high as 17 per cent., more or less, and this is always a desirable feature, as it leaves the Bessemerized matte in a still sufficiently brittle and short condition to facilitate its further breaking and crushing preparatory for final treatment, i. e., the separation of nickel and copper, or refining.

The duration of a blowing operation depends on the size of the charge and the displacement of converter space owing to a thick and recent lining, the capacity of the converter naturally increasing as its silicious lining is eaten up by the iron in the charge. Each charge can be greater than the preceding one, until the sixth or seventh charge is blown, when invariably a new lining has to be put in. Owing to these conditions a blowing operation generally lasts from 20 to 80 minutes, averaging about 50 minutes. It is an ideal pyritic process in the truest sense of the wood.

Yet if we except the iron contents a similar grade of matte can be produced from one heap roasting and re-smelting of standard matte, the difference being that the matte product in this case will carry 16 per cent. sulphur, and 10 to 11 per cent. iron. These results from heap roasting have not been attained anywhere else so far as I know.

Pyritic Smelting.

Cold blast pyritic smelting of sulphide ores has been carried on in Canada, off and on, and for long periods at a time, since 1879 ; not as an experiment, but as a process. Thousands of tons of copper sulphide fines have been smelted with cold blast, and later on in recent years at Copper Cliff with cold and also with very moderately hot blast (the latter about 400° F.), making in these recent operations some 18,000 to 20,000 tons of matte product. The coke consumption was about 5 per cent for both temperatures of the blast, the grade of matte product being almost identical. With a blast temperature sufficiently high—not less than 1200° F.—

to counteract gumming at tuyeres, the sulphur contents of the ore, which should be the only fuel used apart from a small percentage of the iron, can be kept in ignition, and with a higher pressure of the blast we should get sufficient rapid oxidization action, even in a large and fast smelting furnace, to produce a direct 30 per cent matte, or over seven into one, from a raw 4 per cent. ore as it comes from the mines, because if we can dispense with all carbonaceous fuel in first smelting and can use the sulphur contents of charge in its stead, we stop all reducing action, and in lieu thereof introduce a complete oxidizing action, oxidizing the iron and consuming the sulphur in the operation.

IRON RANGES OF NORTHERN ONTARIO.

BY WILLET G. MILLER.

While we have had only one producing iron mine in the northwestern part of the Province during the past year, there has been much activity in prospecting the different ranges. Diamond drilling has been carried on in five rather widely separated areas—at Steep Rock lake, a few miles from Atikokan station in the Rainy River district; along the line of the Port Arthur, Duluth and Western railway, about 50 miles from Port Arthur; on deposits not far distant from the shores of lake Nipigon: on a number of claims in the Michipicoton district; and in the township of Hutton which lies on the western boundary of the district of Nipissing, about 25 miles north of the town of Sudbury. Development work has also been done on claims along the Algoma Central railway, about 25 miles from Sault Ste. Marie, and at Loon lake on the Canadian Pacific railway, east of Port Arthur.

It is believed that there will be a great deal of prospecting for iron ores during the coming summer judging among other things, from the fact that considerable search has been made, by means of the dip needle, for ore bodies during the winter. It may be well therefore to give a resumé of the distribution of the known iron-bearing formations of the northern and northwestern part of the Province. Fuller accounts of some of the iron ranges will be found in the volumes of this Bureau which have been published during the last three or four years.

The following list includes most of the iron ranges and outcrops of iron ore which have been reported as occurring in northern and north western Ontario. In most of these localities the ore is magnetite or hematite associated with jasper or other closely related silicious material.

I. Rainy River District.

Atikokan range; Steep Rock lake; Watten township; Dryden; Upper Manitou lake; Turtle river; Hunter's island; s. w. arm of Red lake, northward of Lake of the Woods; near the height of land, s. w. of the head of Lake St. Joseph, loose; Seine bay, titaniferous magnetite.

II. Thunder Bay District.

Mattawin range: Animikie area along the P. A. and D. Ry.; lake Nipigon and Little Long lake ranges; Little Pine lake; Black Sturgeon lake; Dog lake and Little Pike lake; Loon and Ruby lakes; White Earth lake; Big Mountain lake; lake Savant; Pic river; Little Pic river; Slate islands; Otter cove.

III. Algoma District.

Michipicoton ranges; Cape Choyé; Batchawana bay; townships of Deroche, Hodgins, Jarvis and Anderson; Desert lake, township of Aberdeen, formerly Coffin; on the Woman river; north of Flying Post; Grand Rapids, Mattagami river (Devonian); south of Chapleau, titaniferous magnetite.

IV. Nipissing District.

Ranges between lake Temiscaming and Hutton township, including the lake Temagami and other outcrops; Shining Tree lake, on the Algoma boundary; Upper and Lower lakes Abitibi; near colonization road west of Opimika narrows, lake Temiscaming, titaniferous magnetite.

The map which accompanied the "Report on the Survey and Exploration of Northern Ontario, 1900," shows the situation of most of the localities, in the three more eastern districts, given in the above list. This map and report were published by the Crown Lands Department.[1]

[1] Map of Part of Northern Ontario, showing the Northern Part of the District of Nipissing, Algoma and Thunder Bay, Toronto, 1901.

JAMES BAY
KEEWATIN
ALBANY RIVER
MOOSE FACTORY
MOOSE RIVER
ABITIBI RIVER
NIPISSING
PROVINCE of QUEBEC
DISTRICT
THUNDER BAY
DISTRICT OF ALGOMA
DISTRICT OF NIPISSING
LAKE ST JOSEPH
LAKE NIPIGON
LONG LAC
OGOKI
KENOGAMI
MISSINAIBI
GROWLING
MATTAGAMI
BISCOTASING
TIMMINS
NORTH BAY
SUDBURY
WHITEFISH
SAULT STE MARIE
COBALT
CHARLTON
THE WOODS
LAKE OF
BLACK STURGEON LAKE
STEEP ROCK L.
RAINY LAKE
RAINY RIVER
PORT ARTHUR
NIPIGON
NEPIGON
HEILEY RIVER
MICHIPICOTEN
INTERNATIONAL BOUNDARY
SILVERMIDGE
VERMILION
TOWER
ELY
MESABI RANGE
DULUTH
MINNESOTA
LAKE SUPERIOR
GOGEBIC RANGE
MARQUETTE RANGE
MENOMINEE RANGE
MICHIGAN
LAKE MICHIGAN
LAKE HURON
GEORGIAN BAY
INDEX MAP
To accompany
IRON RANGES of NORTHERN ONTARIO
1903
Iron Ranges

It will be seen from the accompanying sketch map, on which the positions of the iron ranges are marked, that practically they completely surround the Ontario, or northern and eastern shores, of Lake Superior and extend approximately to the eastern and western boundaries of the Province. Iron ranges have also been found here and there in the little known more northern regions, and doubtless many others will come to light when more careful prospecting has been done.

I. District of Rainy River.

In the Rainy River district there are a number of occurrences, concerning some of which we have little information.

THE ATIKOKAN RANGE.

The best known outcrops in the district are on the Atikokan range which runs, just north of the line of the Canadian Northern railway, from near the boundary between the districts of Rainy River and Thunder Bay. This range shows great variety in the character of the ore and the rocks which occur on it.

Near the eastern end of the range is the McKellar deposit, on which considerable work has been done.[2] The ore here is magnetite and lies in rock which may be called chlorite schist.

The deposit stands up as a distinct ridge or hill of considerable size above the swamp. The magnetite is fine-grained, like that usually associated with jasper, and appears to come gradually into the schist, being at first interlaminated with it

This property, which lies about three miles from the railway, is most readily reached from the section foreman's house at the crossing of the Atikokan river, which is about a mile east of Hematite siding. Other deposits on the eastern end of this range, while not showing so large at the surface, possess characteristics similar to those of the McKellar.

STEEP ROCK LAKE.

Twelve or fifteen miles to the west the rocks surrounding Steep Rock lake have attracted much attention, as being the possible holders of large deposits of iron ore. The lake is easily reached from Atikokan station by way of the river of the same name, which affords a good canoe route, about three miles in length, to the lake.

The lake has been described by a number of writers. For this reason only a brief account of it will be here attempted. The most detailed description of it has been given by Prof. C. H. Smyth in a paper in which the geological structure has been carefully worked out.[3]

The shape of the lake is roughly that of the letter M. Going up what may be called the first upstroke of the M we observed brecciated crystalline limestone and loose pieces of hematite and limonite along the west shore.

Near the end of this upstroke, in the apex of the first half of the M, there are a number of high points, which are almost islands, composed of the reddish or yellowish, more or less brecciated crystalline limestone. At the end of the first downstroke is Mosher's point. Pits have been sunk here and some of the material taken from them, which appears to have been found in small quantity, has the following percentage composition: metallic iron, 3.00, manganese, 12.32.

Mr. A. G. Burrows, who made the analysis of the ore, states: "I thought this specimen might be bog manganese, after I found the percentage of iron, but on drying it showed the presence of only a little water. The residue seems to be chiefly silicious and organic matter."

[2] 11th Rep. Bur. Mines, pp. 131-3.

[3] Am. Jour. Science, 1891, pp. 317-331.

There are a number of boulders of hematite on a small island which lies nearly opposite Mosher's point. They consist of what may be called hard ore, and appear to be different in character from most of the ore met with in the material thrown out from the pits. One of the boulders has a diameter of four or five feet. Boulders of similar character are said to be found along the creek which runs out at location 254X.

At only one point in the vicinity of the lake, so far as the writer knows, has ore similar in character to that of the boulders been found in place at the surface. This is on location 126E. Here a mass of hematite about two feet in diameter occurs in the limestone in the face of a cliff a few feet up from the water's edge. In shape this mass is not unlike that probably possessed by the boulders before they had their surfaces smoothed by abrasion, after being detached from the parent rock.

LIMESTONE ASSOCIATIONS OF IRON ORE.

However, in spite of the fact that the boulders, which are now strewn on the shores, may have originally existed as comparatively small, detached masses of ore in the crystalline limestone, it seems not unlikely that large bodies of ore, produced by the leaching of iron out of the limestone, do exist in the vicinity of the lake.

In addition to the outcrops of limestone already mentioned other detached masses occur in the northwest corner of the lake, or at the second apex of the M, and along the southeast arm. Some of these outcrops are in the form of bold bluffs which are almost islands, the line of contact between the limestone and the rock farther back from the shore being occupied by small valleys or ditch-like depressions. Judging from the isolated outcrops of limestone which are found at numerous points on the shores, it would seem that the whole of what is now the basin of the lake was at one time filled in with this rock.[4] It weathers much more rapidly than the surrounding rocks, and the cliffs of it on the shores are fast breaking down. Large caverns occur in them in places, and considerable danger is encountered in scaling their faces or in canoeing under the overhanging loosened masses of rock. Beautiful quartz crystals occur in some of the cavities of the limestone. That the rock contains considerable iron is seen from the color of weathered surfaces of it, and from the thin layers of powdery oxide which lie on some of the flatter portions of the cliff tops. The following, No. 1, is an analysis which I had made of a sample of this limestone. No. 2 shows the percentage composition of a fine-grained crystalline limestone, specimens of which I collected last summer in the vicinity of Geneva Lake station, on the Canadian Pacific railway. Both being of pre-Cambrian age I have placed the results of their analysis together for comparison.

	No. 1.	No. 2.
Silica	26.46	6.04
Alumina	2 10	0.28
Ferrous oxide	5.94	2.31
Lime	20.34	27.01
Magnesia	9.63	19.03
Carbonic acid	26.32	41.87
Moisture		0.16

The lime and magnesia shown in No. 1 exist as carbonates. The insoluble silicious residue after treatment with hydrochloric acid is equal to 31 per cent. The lime and other bases were not determined in this, but the total silica in the rock, as shown above, is 26.46. The loss on ignition was 30.08 per cent., which includes the carbonic acid, 26.32 per cent., as shown in the table.

[4] Many lakes in the crystalline limestone areas of southeastern Ontario are of similar origin, their basins occupying depressions which at one time were filled in with limestone. Remnants of the limestone masses are now in place on their shores.

In No 2 the lime and magnesia shown are also present as carbonates. The insoluble silicious residue, after treatment with hydrochloric acid, is equal to 8.55 per cent. of the rock. The lime and other bases in this residue were not determined.

The larger of the two Government diamond drills has been at work in the neighbourhood of the lake for the greater part of the past year. At the time of my visit drilling was in progress at the shore on location 254X, on the southern side of the southeast arm of the lake. It was found that the lake has here a much greater depth than would be expected. The bottom of the depression is filled with a thick deposit of a reddish silt which resembles soft hematite, but carries only about ten per cent. of metallic iron.

Although the Steep rock limestone appears at first sight to be much different from other iron-bearing formations in the northern districts of the Province, especially from those which are characterized by the presence of interbanded jasper and iron ore, still there is a similarity between the Steep Rock series and those of most of our northern ranges. The iron-bearing formation in the vicinity of lake Temagami, for example, has associated with it carbonates, in comparatively small quantities, similar in character to the limestone on Steep Rock lake.[5] Then again the siderite in the neighborhood of the Helen mine, in the Michipicoton Mining Division, is similar in composition to the more western crystalline limestone. It seems probable that the limestone or siderite at lake Temagami and in other localities at one time was present in large quantities, that now remaining being a very small percentage of what was formerly in place. Moreover since the chief characteristics of many of these iron ranges are so much alike it seems not improbable that at one time, before the extreme erosion to which the region has been subjected took place. siderite or limestone existed on all these ranges.

SIGNIFICANCE OF PYRITE-BEARING ROCKS.

There is one other prominent characteristic, as the writer has pointed out in former reports, which is common to almost all these older, pre-Animikie, iron ranges lying between the Quebec boundary on the east and Manitoba on the west.[6] This is the occurrence of pyritiferous rocks in close association with the iron ore formation. The interbanded zone of jasper and magnetite is in most cases accompanied by a parallel belt of pyrite-bearing rock, whose base is usually composed of chloritic material. At times the two bands lie close together, while in some cases they lie half a mile or more apart. This relationship has been referred to by the writer in his report on the Temagami ranges. The association of pyrite with the iron ore of the Helen mine has been frequently mentioned, and the results of recent drilling through one of the pyrite deposits are given on a foregoing page of the present Report. This body of pyrite is large enough to be of economic importance and there seems little doubt, judging from surface indications, that similar large bodies of the mineral will be found in the vicinity of lake Temagami. It was therefore of considerable interest to the writer to find on visiting Steep Rock lake that a pyrite deposit had recently been uncovered there, thus furnishing further evidence that the iron ore series of this more western field possesses, in all probability, a closer relationship to the iron-bearing formations of Nipissing and Algoma than would at first seem to be the case.

It may also be added that on the Atikokan range proper, to the east of Steep Rock lake, a pyritiferous band of rock accompanies that in which the iron ore occurs. Farther west again the same association is found.

Then there is also a similarity between the quartz veins which are found in proximity to the iron formation at lake Temagami, and other points in Nipissing, and those of the Atikokan and Steep Rock areas. The fact that pyrite and hematite have been found to occur together in the deposits which have been tested in Michipicoton and other localities should act as an inducement for the testing at considerable depths of all pyritiferous deposits.

[5] Tenth Report Bur. Min. p. 169.

[6] Ibid. pp. 169 and 173.

In summing up the facts which have just been stated, I may say it would appear that much work remains to be done both by the field geologist and the mining engineer before all our widely scattered iron ranges can be correlated, and before we can feel safe in affirming that iron ore is not found under certain conditions or that it is certain to be found under others. While we can draw on the valuable experience which has been gained in iron mining on a very extensive scale, in formations similar to our own, in the states of Michigan and Minnesota, it seems that the conditions of occurrence are somewhat different on this side of the international boundary. There are some things to be learned, particularly in connection with the occurrence of iron ore in association with pyrite-bearing belts of rock, which will have to be worked out in our own fields.

The pyrite deposit near Steep Rock lake had been partially stripped at the time of my visit. The rock in which the deposit is situated may be roughly described as a variety of greenstone not unlike that in which some of the pyrite in more eastern districts is found. The pyrite is more or less mixed with rock matter and magnetite, and has a brecciated appearance. A shallow open cut in the deposit was about 150 feet in length from north to south. The length of the deposit from the foot of the little lake known as Straw Hat lake eastward is about 300 feet. It would appear that a part at least of the basin of the little lake was at one time occupied by material similar to that in the deposit. Considerable diamond drilling has recently been done on this pyrite mass.

Other iron ranges and outcrops of iron ore have been discovered in the Rainy River district but little work has been done on them.[7] They include that near the village of Dryden, on the main line of the Canadian Pacific railway, that which crosses the Canadian Northern track near Nickel lake in Watten township, and the reported discoveries of ore on Upper Manitou lake and Turtle river. Then there are the Hunter's island outcrops near the international boundary which are claimed to be on a continuation of the Vermilion range of Minnesota.

II. District of Thunder Bay.

In the Thunder Bay district similar ranges occur, some of which have been known for many years and have been more or less carefully examined.

MATTAWIN RANGE.

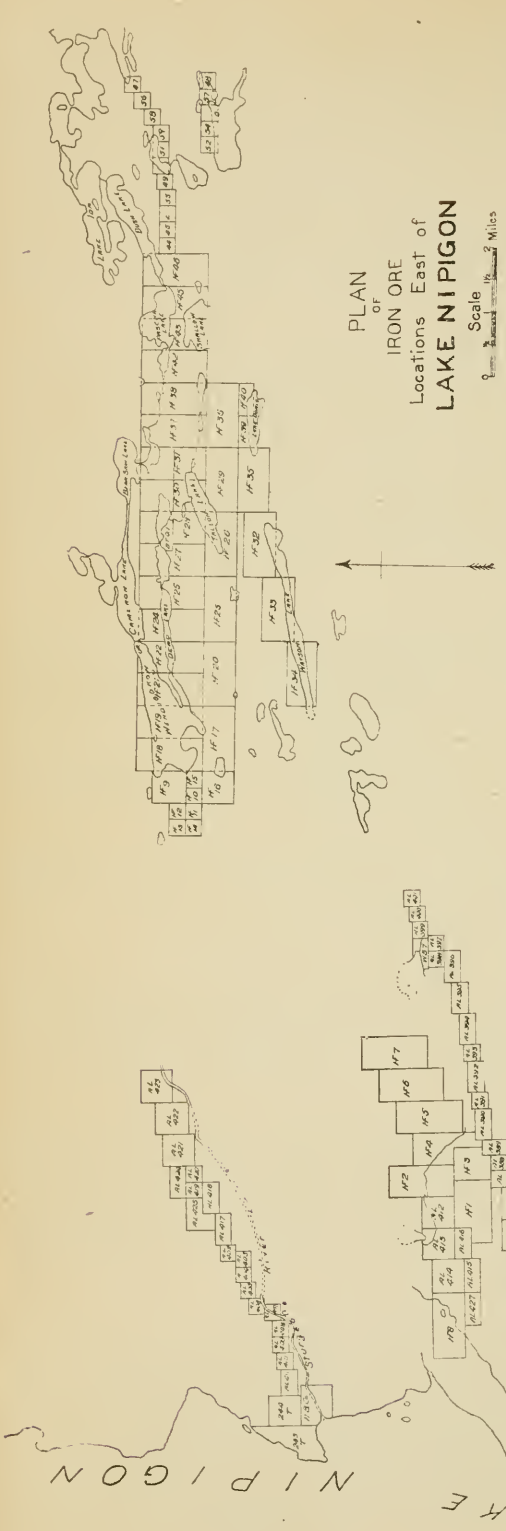
One of the best known is the Mattawin range. Important outcrops on this range can now be easily reached by taking a train on the Canadian Northern railway to the forks of the Mattawin river. A road runs on either side of the river to the range which lies a couple of miles south of the railway.

This range, so far as it has been traced, has a total length of 35 or 40 miles. It runs from Greenwater lake eastward, south of lake Shebandowan, to Kaministiquia on the Canadian Pacific railway. The ore formation consists of interbanded jasper and other closely related silicious material, with, usually, magnetite, although at times the ore associated with the jasper is hematite. This range has been frequently described in a general way both in the reports of the Geological Survey and Bureau of Mines.

THE MESABI EXTENSION.

Another iron-bearing area in the Thunder Bay district which has attracted considerable attention as a probable source of ore is thus outlined by Mr. William McInnes, of the Canadian Geological Survey: "Roughly described, this area occupies a triangular space bounded by Lake Superior, the United States boundary, and a line extending from Gunflint lake northeasterly to the shores of Thunder bay." This area is covered by Animikie rocks similar to

[7] 11th Report, Bur. Mines, p. 134



those of the Mesabi range of Minnesota. Mr. McInnes and others who have examined the field state that it is a matter of probability that similar beds of ore to those of the Mesabi will be discovered. Prof. Van Hise also states[8] "Undoubtedly equivalent with the Upper Huronian Mesabi iron-bearing series is the Animikie series of Thunder Bay, which extends from Gunflint lake on the international boundary east beyond Port Arthur on Lake Superior." This area is penetrated by the Port Arthur, Duluth and Western railway and by the Canadian Pacific railway.

Diamond drilling has been in progress for seven or eight months past on the area of these rocks which surrounds Loon Lake, a railway siding twenty-three miles east of Port Arthur. The ore, which is red hematite, is associated with taconyte similar in character to that of the Mesabi range. Detached areas of trap here, however, overlie the taconyte in places. The taconyte also rests on trap. The bottom of the taconyte layer, which averages about forty feet in thickness, at some points has siderite associated with it.

The taconyte layer or bed dips at a slight angle towards Lake Superior, which lies four or five miles to the southward. Granite hills form a barrier to the northward. It would seem that the hematite has been deposited, replacing the taconyte, by waters circulating or making their way southward from the granite hills on the north to Lake Superior.

LAKE NIPIGON RANGES.

Other ranges in the Thunder Bay district which have attracted more or less attention include those which run eastward from the shore of lake Nipigon. This locality was described by Mr. J. W. Bain in 1900,[9] at the time the first locations were being surveyed. Since then much

[8] "Iron ore Deposits of the L. Superior Region," p. 410.

[9] Tenth Report of the Bureau of Mines, pp. 212-214.

prospecting has been done on the ranges which are said to be three in number and roughly parallel to one another. Two companies who have had options on the locations have done diamond drilling. Operations have now ceased not on account, it is said, of the outlook for the discovery of workable ore bodies being unpromising, but owing to the inability of those doing the work to make satisfactory terms with the owners as regards time for thoroughly testing the properties before having to make large cash payments.

Dr. W. A. Parks makes the following statement concerning these Nipigon iron ranges:[10]

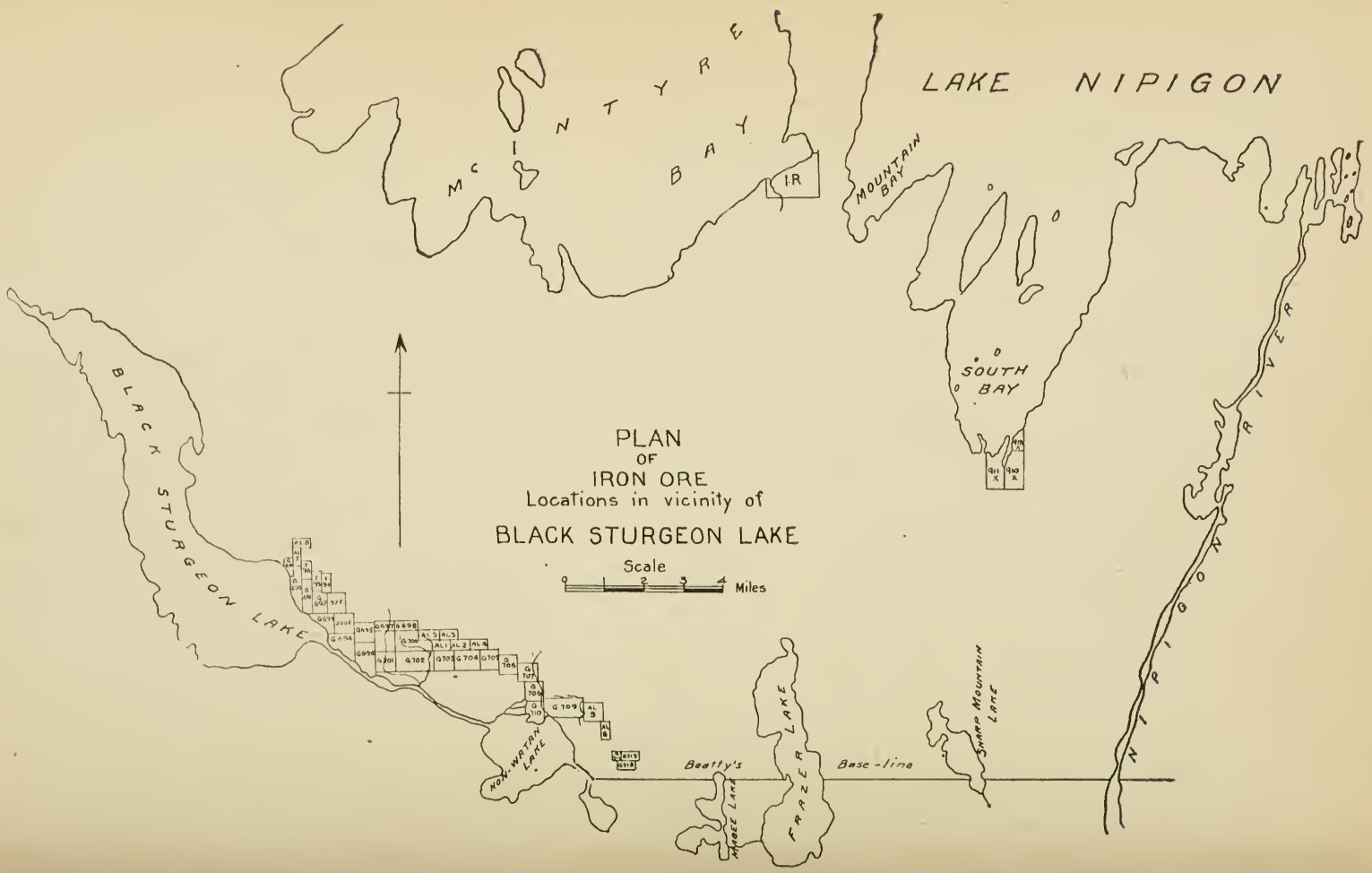
"The region, from the Sturgeon to the Blackwater river and for a few miles on each side of these streams, is occupied by various Huronian rocks, including sericite and other schists, altered porphyrite and quartz-porphyry, slate and, more abundantly, diorite, both massive and in different stages of metamorphism. Agglomerates also are found at a few places. The dividing line between the agglomerates and the rocks between them might be drawn from the mouth of the Sturgeon river to a point north of Windigokan lakes. Particular attention is due to this region as it contains, in places, ranges of schists passing into jasper and hematite. The strike is somewhat north of east in all cases and the dip variable, but always near the vertical. Within the limits of the sheet there are, roughly speaking, three ranges with indications of iron; one just north of the Sturgeon river and two south of it. Many claims have been staked on these belts, chiefly by the Flaherty and Clergue syndicates, both of which are actively and systematically prospecting the region. Mr. Flaherty has had a diamond drill working during the past summer on the first range south of the Sturgeon (the Sand river range) The jasper rock is here 1,000 feet wide and is filled with narrow bands of pure hematite. Its strike is 22° north of east and its dip northward 76°. The drill was driven down 542 feet at an angle of 60° from the vertical to the south, thus cross-cutting the deposit. The core revealed continuous jasper with narrow bands of hematite and at the bottom a passage into quartzite. This belt has been traced, with some interruptions, to Little Long lake, a distance of 70 miles to the eastward, at which Dr. Bell mentioned the occurrence of iron ore in his report for 1870. North of the Sturgeon, the strike is about the same, but the average width is difficult to ascertain as the deposit is covered by the silt at the river banks. Slaty hematite, giving 40 per cent. iron has been found at different places on this range. I was able to work out the geological conditions of occurrence fairly well and will be in a position to write on this point when the various samples have been examined. Jasper was observed at one place on the Blackwater river and magnetite was found south of Blackwater lake."

NEAR BLACK STURGEON LAKE.

Dr. Wilson refers to the occurrence of soft hematite in the vicinity of Black Sturgeon lake which lies southwest of lake Nipigon.[11] From his report it would appear that there is a probability of workable deposits being found in the vicinity, and locations have recently been applied for covering some of the outcrops. Dr. Wilson classes the rocks as Huronian. His discription of the iron ore outcrops is as follows:

"Commencing near the southeast corner of Black Sturgeon lake and extending southeast to the vicinity of Nonwatinose lake is a narrow belt of highly ferruginous quartzite of an average width, so far as could be determined, of about four hundred yards. On the northeast, this quartzite band, whose beds strike N. 20° E. and are nearly vertical, is cut off by the granitoid gneiss belt referred to above, while on the southwest it is overlaid by later deposits. About half a mile east of Black Sturgeon lake, the quartzites are interbanded with a red hematite, sometimes quite soft, in bands rarely over a foot in width. The outcrop at this point is small, but from the typographic features of the vicinity one would expect that a much larger body of soft hematite ore would be found in the valley near the outcrops, which are on the side of a steep incline. Farther east, other small exposures of the ore occur, but the drift covering makes it impossible to determine their extent and value without considerable stripping. I understand that locations have already been taken up along this belt, although I was unable to find any claim stakes in the vicinity of Black Sturgeon lake. Claims have been staked north of Nonwaten and east of Nonwatinose lake. No development works of any kind has as yet been undertaken, and the value of the belt has still to be proved. The ores which I have seen vary from a soft unctuous clay-like mass of bright red hematite to a hard ore, in which are frequently found small patches of sparkling blue-black hematite. I was informed that specular hematite in larger masses has also been found in the vicinity."

[10] Sum. Report, Geol. Surv. 1901, p. 105. [11] Ibid. p. 98.


LAKE NIPIGON
Mc INTYRE BAY
IR
MOUNTAIN BAY
SOUTH BAY
NIPIGON RIVER
BLACK STURGEON LAKE
PLAN
OF
IRON ORE
Locations in vicinity of
BLACK STURGEON LAKE
Scale
0 1 2 3 4 Miles
HOW-WATAN LAKE
Beatty's Base-line
MOOSE LAKE
FRAZER LAKE
SWAMP MOUNTAIN LAKE

Two samples of hematite, from the Black Sturgeon area, given to me by Mr. H. A. Wiley of Port Arthur, were found to have the following percentage composition :

	1.	2.
Metallic iron	60.11	53.71
Sulphur	0.08	....
Phosphorus	0.016	....
Titanium	none.	none.

DEPOSITS ON PIC RIVER.

The writer has not been able to obtain much information concerning the Pic river deposits which lie four miles north of Peninsula harbor, lake Superior. Locations X800 to X809, totalling 1,400 acres, were surveyed two or three years ago. The ore is said to be magnetite, but no description of the geology of the locations is at hand. It is stated that the deposits have been uncovered at several points. A general account of the geology of the Pic river is given by Dr. Robert Bell, who examined it in 1870.[12] In the same report he refers to the occurrence of iron ore on the Little Pic river and states : "The rock at the mouth of the river, on the west side, consists of a massive crystalline granitoid rock, composed chiefly of red orthoclase with a little black hornblende, holding thick beds or veins of magnetic iron ore " ; and further, "the principal deposit of iron met with in the region explored is on the west side of the mouth of the Little Pic river, where as already mentioned, thick beds or veins of iron ore are associated with a reddish granitoid rock. The united thickness of three of these, which occupy a horizontal position in a cliff, appears to be about ninety feet. A sample of this ore, assayed by Dr. Hayes, of Boston, yielded thirty-six per cent. of metallic iron, and another assayed by Dr. Girdwood, of Montreal, from a different spot at this locality, contained forty-six per cent. of metal. Dr. Hunt finds a specimen which we brought to contain 36.85 per cent. of iron, chiefly as a silicate."

MAGNETITE ON SAVANT LAKE.

Above the upper end of the narrows, which run northward from the old post of the Hudson Bay Company, a bay about two miles deep stretches to the southwest. A creek runs into the head of this bay, and a portage follows roughly the direction of the creek for a distance from the shore. Across the strike south from this creek we found stringers and lenses of a fine-grained magnetite in chlorite schist over a distance of from 150 to 200 yards. The magnetite occurs very irregularly distributed in the schist, and gives no appearance of being of economic value at this point. In one or two places lenses were found which had a width of three or four feet with a length two or three times as great. They did not appear, however, to be continuous at any great depth. To the northeast, at the mouth of the bay, similar outcrops of narrow stringers of magnetite are found on the islands. At one point here the stringers or bands exhibit a highly brecciated structure. The rock is rather hard to classify in the field, and might be put down either as a chlorite schist or greywacké. A thin section of a portion of it appeared to indicate that the specimen from which it was taken had originally been part of a more or less basic igneous mass.

An outcrop of somewhat similar magnetite lies a short distance west of the old Hudson Bay post, near the southern end of the narrows which connect the two parts of the lake.

Although no jasper or siderite was found in connection with these Savant lake outcrops, it is not improbable that if a line is followed in the direction of the strike a typical jaspilyte series will be found.

[12]Geol. Surv. Rep., 1890-71, p. 327.

OTHER OCCURRENCES IN THE DISTRICT.

The largest of the Slate islands, which lie about eight miles south of Jackfish bay, lake Superior, is reported by Dr. Bell to have "a band of impure slaty hematite ore" on its western point. Further information on the geology of the Slate islands is given by Dr. Coleman.[13]

Last autumn a deposit of magnetic iron ore was discovered a few miles inland from Otter cove, lake Superior. The deposit is said to lie a short distance north of the township of Homer. The ore is fine-grained.

The following quotations refer to other outcrops of iron ore in the Thunder Bay district.[14]

"One side of Little Pine lake has a number of mineral exposures of copper and iron." This lake is on the river of the same name which is a branch of the Kenogami, and it lies not far west of the eastern boundary of the district.[15]

"At the first portage there is an iron-stained outcrop with a band of red jaspery mineral running through it about two feet wide. . . Samples of this mineral and rock . . . showed reddish jasper mixed with magnetic iron and very silicious."[16] The portage referred to is on "a river at the southwest of the lake," Wahbahkimmung or White Earth lake. The description given of the location of this outcrop is not very definite, and the river referred to is not shown on the map. White Earth lake lies nearly midway on the canoe route between lake St. Joseph and lake Nipigon.

"A number of islands occur in this lake composed of gneiss, which contains a considerable amount of magnetite."[17] The lake referred to is Big Mountain lake on the route between the Gull river and Obugamiga lake, to the west of lake Nipigon.

"The region northeast of Dog lake is reported to be rich in minerals. A number of iron claims north of Little Pike lake have been surveyed, and other deposits of iron in this district are known to occur."[18] The Dog lake referred to lies 12 or 15 miles north of Kaministiquia station.

Referring to that part of the Albany river between the mouths of the Ogoki and Kenogami, in the vicinity of the boundary between the districts of Thunder Bay and Algoma, it is stated that the channel is "full of gravel bars and low gravel islands of rounded pebbles, prominent among which are many of hematite and jasper."[19]

III. District of Algoma.

In Algoma, the next district to the east, iron ore deposits and ranges have been reported in numerous localities. The Michipicoton iron range, which is our only productive range at the present time in northern Ontario, lies, according to the most recent survey, in Algoma close to the boundary of Thunder Bay district. It is not necessary to say much here concerning this range as it has been described in many papers during the last four years, especially in the Eleventh Report of the Bureau of Mines. The Helen mine and other deposits on the range are also referred to in the present report. Considerable interest was aroused during the past summer in an area which lies about four miles south of the Michipicoton river and two miles from lake Superior. About thirty claims have been staked out there.

The Cape Choyé range is said to be six miles long and similar in character to that of Michipicoton proper.

Batchawana bay attracted attention years ago on account of the iron formation which outcrops in its vicinity. The outcrops have been described by a number of writers.[20]

[13] 11th Report, Bur. Mines, pp. 137-8.

[14] Report of the Survey and Exploration of Northern Ontario, 1900.

[15] Ibid, p. 144. [16] Ibid, p. 185. [17] Ibid, p. 200. [18] Ibid, p. 205. [19] Ibid, p. 171.

[20] Tenth Report Bur. Mines, p. 189.

The occurrence of iron ore in the townships of Deroche, Jarvis, Anderson and Hodgins has been already referred to in this report. The ore in the deposits on which work has been done is described as being a soft hematite more or less interbanded with jasper or other closely related material of a silicious nature.

The iron deposit at Desert lake in the township of Aberdeen was opened up in 1874, and worked on a small scale for three or four years. Several vessel loads of ore, which is a hematite, were shipped to Detroit.[21]

GROUND HOG RIVER IRON BELT.

Iron locations have been staked out on the belt which crosses the Ground Hog river four or five miles north of Flying Post. The post is reached by canoe from Biscotasing station. over a fairly easy route, in a trip of about two and one half days. The route followed is shown on the geological map of northern Ontario, published by the Department of Crown Lands. The point at which the belt crosses the river is distant 45 or 50 miles in a straight line from the railway.

At the time of my visit to Flying Post, in September last, I was shown over that part of the belt which lies adjacent to the river by Mr. Otto E. Telgmann, who has explored a large part of the surrounding district. Several locations had been staked out on the east side of the river by Mr. Telgmann and associates, and by Mr. Drew. The following notes were made at that time, Mr. Telgmann supplying the measurements. Two parallel belts cross the river here. They have a strike which is approximately N 52° E and dip 80° to the northward. From the south edge of one belt to the north edge of the other the distance across the strike is about 1,100 yards. The south belt has a width of about 200 feet at the river and 300 to 400 feet one mile east, as shown by the dip of the needle.

The space between the two belts is occupied by a greywacké-like rock. Mr. Telgmann claims that the north belt shows five bands of ore, separated by rock. The distance across the strike of these bands is about 450 feet.

The south belt at the time of my visit had been traced east about one and one half miles, and the north belt one mile. West from the river the south belt has been traced one half mile and the north belt one mile. The rock more closely associated with the bands is chlorite schist, while, as already stated, that occupying the space between the two belts is more like greywacké. Quartz diorite, containing bluish quartz like that of some of the rocks in the vicinity of Sudbury, outcrops in close proximity to the bands, but was not seen to cut them. The southern belt is bounded on the south by what appears to be typical slate. A quarter mile down stream, or north of the northern belt, is an outcrop of a massive igneous rock, whose character was not definitely determined. It may be either a granite or a diorite. Farther down, a quarter of a mile or so, is an outcrop of rather massive chlorite schist. The exposures on the east side of, and near the river, lie in rather low ground, and are pretty well covered with moss and a growth of green timber. The material in the bands here consists of magnetite, which is at times rather coarse-grained, and interlaminated with red jasper and closely related silicious material of other colors. Some of the white silicious material is friable, and can be broken in the fingers to a fine-grained white sand.

During the past winter Mr. Telgmann has traced the iron-bearing formation farther eastward and westward, and has shown that it has a length of at least six miles. Samples which he collected on this last trip consist of silica interbanded in some cases with magnetite, but more usually with the red (hematite) or brown oxides of iron. The silica is of light or dull colors, and some at least of the oxide of iron may have been derived from pyrite, which is

[21] Rep. Com. Min. Res. Ont., 1890, p. 143.

PLAN
of
Iron Ore Locations between the
North East Arm
of
LAKE TEMAGAMI
AND
KOKOKO BAY
Scale 2 miles to 1 inch
Mo-Mo-Mo Lake
WD 345
WD 344
Mo-Mo-Mo Bay
Loon Lake
Loon Bay
Spawning Bay
Spawning Lake
NORTH EAST ARM
Tetapaga Lake
Tetapaga River
Iron Lake
ETW 336
WD 332
WD 335
Vermilion Lake
P6
P5
ETW
WD 257
WD 265
WD 266
WD 340
NET LAKE
WD 270
WD 269
WD 264
WD 239
WD 257
WD 260
WD 258
WD 261
WD 262
WD 271
NET LAKE
ONTARIO
T. & N. O. RAILWAY
TEMISKAMING
WD 343
WD 342
WD 341
ETW 338
ETW 100
ETW 328
P1
WD 357
Crooked Lake

present in some of the specimens. One sample, which has not been examined chemically, appears to be ferruginous dolomite or siderite, and is decomposed, for a half inch or so in from its exposed surface, to iron oxide. These specimens are said to come from a point three miles or more east of the river.

IRON FORMATION ON WOMAN RIVER.

The locations which have been staked out on the iron belt on Woman river are said to be most easily reached from the mouth of this river, which is passed on the way from Biscotasing to Flying Post.

Some mining has been done on the portage which enters the south end of Opeepeesway lake in a banded silicious series, which is evidently part of an iron-bearing formation, although no iron ore occurs here. The banded material is similar to that of the jaspilyte belts. If traced east and west it is likely that this series will be found to pass into an iron-bearing one. In the pits which have been sunk pyrite has been met with. About one half mile up the western shore of the lake from the northern end of the portage an outcrop of metamorphic conglomerate was examined. It is similar in appearance to that which is associated with the iron-bearing series on lake Temagami and elsewhere.

ON THE MATTAGAMI.

Referring to the occurrence of iron ore at the Grand Rapids on the Mattagami river it is stated :

"This locality is remarkable for the occurrence of a large deposit of iron ore. Its position is on the northwest side of the river, at the foot of the rapids. It runs along the foot of the cliff a distance of upwards of 300 yards, almost continuously, with an exposed breadth of twenty to twenty-five yards. The highest points rise about fifteen feet above the level of the river. The surface is mottled, reddish-yellow and brown, and has a rough spongy or "lumpy" appearance, like that of a great mass of bog ore. At the surface, and sometimes to the depth of several inches, it is a compact brown hematite, occasionally in botryoidal crusts, with a radiating columnar structure ; but deeper down it is a dark gray, compact, very finely crystalline, spathic ore, apparently of a pure quality. The brown hematite evidently results from the conversion of the carbonate. The former yields, according to the analysis of Mr. Hoffman, 52.42 per cent. of metallic iron, while the latter shows a very small amount of insoluble matter ; indeed there is, chemically, little room for impurities, since it gives rise to so rich a brown hematite. The geological relations of this singular deposit are puzzling ; it may be of newer date than the limestone gorge in which it occurs. The adjacent overlooking wall of soft earthy limestone is worn into vertical caverns, with fluted and rounded walls, like the sides of great pot-holes. They are sometimes partially lined with a thin coating of a highly ferruginous carbonate. The iron ore was nowhere seen quite in contact with the rock."[22]

IV. District of Nipissing.

In the district of Nipissing outcrops of iron ore have been found at numerous points. The chief outcrops, between lake Temagami on the east and the Township of Hutton on the west, are described in the Tenth Report of this Bureau, pages 160 to 180. The Shining Tree lake and other outcrops have also been described in recent reports.

The occurrence of magnetite at lake Abitibi is described as follows: "it was observed on the south side of the upper lake and also on the west side of the lower lake. At none of these localities, however, was it found in important quantities." [23]

[22] Report Geological Survey, 1875-6, p. 321.

[23] Rep. Geol. Surv. 1872-3, p. 132.

MOOSE MOUNTAIN IRON RANGE.

BY C. K. LEITH.

The readers of the Ontario Bureau of Mines Reports are already familiar with the general features of the Moose Mountain iron range of Ontario through the papers of Professors Coleman and Miller. During the fall of 1902 the writer made a somewhat more detailed examination of the area than had before been practicable, and as a result of this work is able to present a few additional points concerning the geology of the range.

The Moose Mountain iron range lies about twenty-five miles north of Sudbury, Ontario, in the township of Hutton and district of Nipissing.

Magnetite ores appear in numerous exposures in the area. On weathered surfaces they are black, dark green and gray, and on glaciated surfaces have the lustre of metallic iron. The ores are minutely interbanded with silicious material, including chert and phases resembling quartzite and graywacké, and in places also they contain monoclinic amphiboles and epidote. Certain of the lean banded silicious ores resemble jasper but the colors are black and gray, and rarely yellow, brown, or dull red. Typical bright red jaspers are not seen. The ores, together with the associated rocks and minerals above mentioned, may be called the iron formation.

The microscope shows complete gradation between masses of almost pure magnetite and aggregates of amphibole, probably mainly hornblende. The associated silicious material which in the hand specimen resembles both chert and quartzite, appears under the microscope as a clear crystalline mosaic of closely fitting particles showing absolutely no trace of fragmental origin, so far as the writer has been able to discover. The re-crystallization of fragmental quartz rock or of chert such as occurs in the Lake Superior region could yield the same result.

Depending upon the amount of silicious or amphibolitic material which they contain, the ores vary from lean to high grade. Ordinarily the lean and high grade ores are in separate exposures. The silicious impurities tend to lower the grade of the ore very rapidly, while amphibolitic and epidotic inclusions may be present in considerable abundance and the ore still be of good grade, although such impurities may slightly increase the difficulty of working in the furnace. The ore has a strong effect on the magnetic needle, and magnetic readings enable one to connect up the isolated exposures into several belts.

Geological Features of the Range.

The rocks immediately adjacent to the iron formation belts are:

(1) Basic igneous rocks, which may be collectively referred to as greenstone and green schist. They vary in texture from coarsely granular to fine-grained, and from massive to schistose. Under the microscope they may be seen to have close similarity in mineralogical composition in that they all consist mainly of hornblende, with interstitial feldspar and other accessory constituents. According to the abundance and arrangement of these minerals the rocks may be called hornblende schists, hornblende gneisses, diorites, metabasalts, amphibolites, or perknites. Characteristics of nearly all of these phases is the presence of accessory magnetite; in some of the rocks also a little pyrite is to be noted. Near the contact of the ores the magnetite increases in amount, and specimens may be collected showing complete gradation between rocks consisting predominantly of hornblende on the one hand and the magnetite ores on the other. The greenstones and green schists are in considerable part intrusive into the iron formation, but there is no evidence that all of them are intrusive, and indeed it is likely that certain of the more schistose and more metamorphosed of the green schists are basal to the iron formation, have served as the basement upon which it was originally deposited, and have been folded with the iron formation.

(2) In a few places immediately adjacent to the ore belts is a pyritiferous graywacké formation, with quartzitic and slaty phases, and with dark green phases which can with the greatest difficulty be discriminated from the greenstones. The fragmental origin of these rocks seems clear in the field and in the hand specimens, but under the microscope there appears a closely fitting mosaic of quartz and feldspar with no traces of rounded or fragmental outlines, a structure which might equally well have resulted from the alteration of fragmental sedimentary rock or from organic chert. The magnetite ores contain thin layers of graywacké-like material as already noted, and these become more abundant near the contact with the graywacké formation.

(3) At still other places massive granite comes into contact with the ores, and the relations are such as to indicate the granite to have intruded the ore and at least part of the greenstone. Near its contact with the greenstone there is at places a zone of weak magnetic attraction. The granite is a biotite granite, and is rarely pyritiferous. Exposures of rich ore are in places found adjacent to the intrusive greenstone and granite, suggesting that the intrusion of these rocks has had an effect on the concentration of the ore.

The granites and a large portion of the greenstones are fresh and massive. The green schists show a vertical schistosity, and the graywacké and iron ore belts exhibit steeply inclined bedding and schistosity.

Comparison with Vermilion Iron District.

In their steeply inclined attitudes, their relations to surrounding greenstones and green schists, their sharp and irregular contacts with these rocks, their intrusion by acid igneous rocks, the iron formation belts of the Moose Mountain range show very suggestive similarity to the iron and jasper belts and associated greenstones and green schists of the Vermilion iron district of Minnesota. They differ in the character of the ores, those in the Moose Mountain range being magnetite, while those in the Vermilion range are hematite ; in their association with fragmental pyritiferous graywacké, the Vermilion ores having associated slate, but apparently no coarsely clastic material; in the presence of amphibole and epidote in a part of the ores, these being lacking in the Vermilion ores ; in that a considerable part of the greenstones in the Moose Mountain range are intrusive, while in the Vermilion range they are practically all basalt ; and in that the Moose Mountain ores lack the associated brilliantly colored jaspers which are a very characteristic feature of the Vermilion range.

The iron-bearing series of the Vermilion district of Minnesota has been mapped and described by the United States Geological Survey as Archean or Basement Complex, and on the basis of rough lithological similarity the Moose Mountain series might also be assigned to the Archean. But the differences above noted are such that in the absence of any structural connection with the Vermilion district any correlation of the Moose Mountain and Vermilion iron-bearing series would be a mere guess.

To the southeast of the township of Hutton, near lake Wahnapitae, there may be seen iron formation rocks presumably belonging in the same general belt as the Hutton ores. But the Wahnapitae rocks differ from the Hutton rocks in showing close association with a clean-cut pyritiferous quartzite, in being very lean, and consisting for the most part of chert and monoclinic amphibole, with a subordinate amount of magnetite. Under the microscope octahedra of magnetite are seen lying in a closely fitting, somewhat irregular mosaic of quartz, ramifying through which are numerous thin needles of colorless and light greenish amphibole. The rock is similar to rocks which have been called actinolite-magnetite-schists or grünerite-magnetite-schists, in the Lake Superior region. The associated pyritiferous quartzite, which, as shown in the ledge and in the hand specimen, is

clearly and without doubt a quartzite, under the microscope exhibits a quartz mosaic differing from the quartz mosaic in the actinolite-magnetite rock only in being somewhat more even in texture. It is possible that the quartoze background of the actinolite-magnetite rock and of the quartzite are the same in origin, but it seems more likely that the recrystallization of the silicious material in two different kinds of rocks has resulted in phases showing general similarity.

Possible Origin of the Ore.

It is yet too early to make any definite statements concerning the origin of the iron ore, but there are known certain significant facts which may be of interest.

The characteristic association of magnetite, amphibole, and quartz (which is probably recrystallized chert) is the same as in rocks of the Lake Superior country which can be proved to result from the alteration of iron carbonate and ferrous iron silicate under deep-seated conditions of silication and partial oxidation. In the east end of the Mesabi district actinolite-magnetite rocks have resulted from the alteration of ferrous iron silicate, presumably because of the influence of the great Keweenawan gabbro adjacent,[1] and in the east and west ends of the Penokee-Gogebic range similar rocks [2] have developed through the action of the Keweenawan rocks. The Moose Mountain iron formation is cut by intrusives, and the conditions have been favorable to the development of the presently observed rocks from iron carbonate or iron silicate, if such were ever present. Beyond this, however, there is no evidence that the ores have developed from original rocks of this character.

Professor Miller, of the Ontario Bureau of Mines, has noted, as warranting further study, the common association of the iron ores in the Nipissing district with pyritiferous quartzites and graywackés.[3] This fact, together with the general importance of sulphides of other ores in this district, and the stages of alteration of iron pyrites to iron oxides actually to be observed on a small scale in hand specimens of certain of the adjacent rocks, suggests that iron pyrites may be in some way connected with the origin of the iron ore in this district. This is little more than conjecture, but should certainly be followed up by any one attempting to prove the origin of the ores. Chemically, there is no reason why ores should not develop from iron sulphides as well as from iron carbonates or from iron silicates, and Van Hise has suggested the sulphides as a partial source for certain of the Lake Superior iron ores and especially the Michipicoton ores, and has indicated their probable manner of development.[4] However, the actual development of a considerable body of ore from such a source in the Lake Superior region has not yet been proved, and the burden of proof will rest heavily upon any one attempting to establish this origin for the Moose Mountain ores.

While much of the ore in the Hutton district is too lean for present use, there is also present a considerable amount of ore running above 58 and 60 per cent. in metallic iron. Little test-pitting or drilling has been done to determine the extent of such ore, but the surface indications are promising. Sulphur, an element to be feared in magnetite ores, is in very small quantity; the considerable number of analyses which have been made of the ore show sulphur varying from .01 to .08 per cent. Titanium is altogether lacking.

The ore is hard and crystalline, and because of its crystalline character will crush to a good size for furnace use. It will doubtless be found to serve admirably for mixing with soft ores such as the Mesabi.

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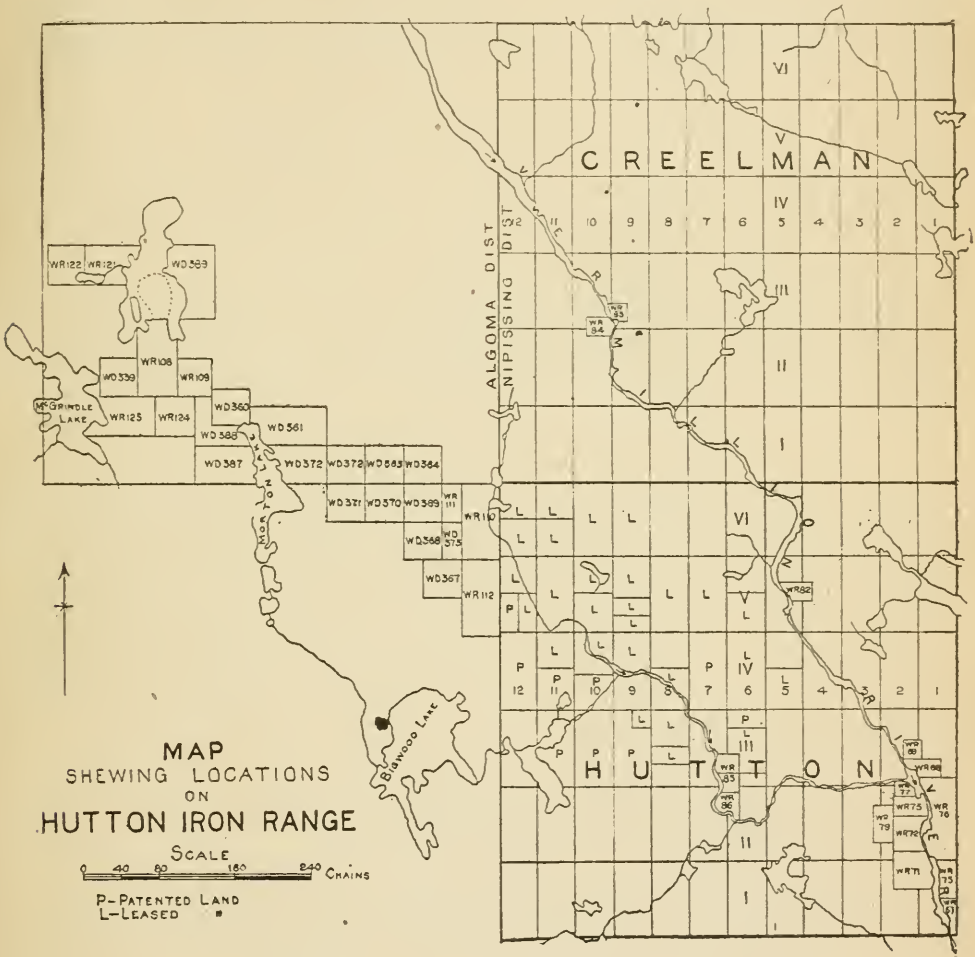
[1] The Mesabi iron-bearing district of Minnesota, by C. K. Leith: Mon. U. S. Geol. Survey, Vol. XLIII, 1903, pp. 272-274.

[2] The Penokee iron-bearing series of Michigan and Wisconsin, by R. D. Irving and C. R. Van Hise: Mon. U. S. Geol. Survey Vol. XIX, 1892, pp. 257-260.

[3] Report of the Bureau of Mines for 1901, p. 177.

[4] The Iron Ore Deposits of the Lake Superior region, by C. R. Van Hise: 21st Ann. Rept. U. S. Geol. Survey, Pt. III, 1901, pp. 319-320.

The rail haul to Georgian Bay is something like 60 miles, about the average for the Lake Superior ores, and the distance by water from the railway terminus on Georgian Bay to the great consuming centres near Lake Erie is much less than the distance from Lake Superior shipping ports to the Lake Erie ports. The duty on the ore, if used in the United States, is about counterbalanced by the difference in boat freight. It is assumed that the ore will be used for the most part in the United States, but of course it may be used in the Canadian iron industry if conditions are favorable to the development of such an industry in the early future.



MAGNETIC CONCENTRATION OF IRON ORES.

BY J. WALTER WELLS.

The future supply of iron ore is a problem which far-sighted ironmasters are investigating, as the resources presently available are not calculated to last many years. Already English and German iron works are importing ores from Spain and Sweden. In the United States the reserves of high-grade ore are not likely to be sufficient for more than 40 years, while the supply in Canada is apparently no more abundant ; so that the best means of utilizing the immense deposits of low-grade iron ores well known to exist becomes a proper subject of inquiry.

Meanwhile the production of pig iron continues to increase rapidly. For example, in 1901 the total production of pig iron in the United States was 15,878,854 long tons valued at $242,174,000 using 28,887,479 tons of iron ore, being nearly twice the production in 1896. In 1900 Canada produced 86,090 long tons of pig iron, while in 1901 the production rose to 244,976 tons and without doubt is destined to advance with rapid strides.

Iron ore does not reproduce itself as does forest or animal wealth. Ironmasters are facing a constantly decreasing supply of high-grade iron ore along with a constantly increasing consumption. Sooner or later the low-grade iron ores must be drawn upon. And it may be advisable to concentrate such ores before using them in the furnace.

What is Concentration?

To the engineer concentration means the separation of the chaff from the wheat—the elimination of the worthless rock from the valuable ore. Present methods of concentrating iron ores are based upon some difference between the constituents of an ore either in hardness, specific gravity, or in magnetic permeability, *i. e.*, the relative susceptibility to a magnetic influence, by taking advantage of which a separation is effected. For example, it is comparatively easy to separate a granular hematite imbedded in a calcareous gangue. The calcite being softer than the hematite will crush finer with the same treatment, and as it is of relatively less weight than the hematite, a system of crushing, sizing and treating in a pulsating jig removes the gangue from the ore.

Again, a hard dense magnetite associated with a soft schist would be amenable to concentration as the schist would crush finer than the ore, the resultant product after sizing in hydraulic classifiers being readily separated by jigs into heads consisting of pure ore, and tails consisting of worthless rock.

Both the jig and the hydraulic classifiers depend on the difference in specific gravity of the constituents. In the case of the common mixture of magnetite with pyrite, both of about the same hardness and specific gravity, a system of water concentration would not give satisfactory results. Fortunately, an electro-magnet has a greater attractive influence on the magnetite than on the pyrite, so that we have a means of eliminating the pyrite from the magnetite when the grains of each constituent are entirely detached. How this may be done will be shown further on.

Reasons for Concentrating Iron Ores.

The ironmaster demands as pure an ore as possible in order to make a cheap and high-grade pig. For example, the standard ore of Bessemer grade on which payments are made by most American dealers carries 63 per cent. iron, 0.045 per cent. phosphorus, 0.05 per cent. sulphur, and the proportion of sulphur or phosphorus cannot exceed these limits without

lowering the selling price of the ore. In smelting an ore high in iron contents less fuel, les fluxing material and less labor are required than in using a lean ore. Besides, the stock piles are likely to be more uniform, so that less trouble is experienced in making up the charges for the furnace burden.

The iron blast furnace is practically a concentrating as well as a reducing machine. All of the constituents of the ore except a portion of the metallic contents are separated as worthless slag, while the valuable pig iron is saved. Immense sums of money are annually spent in mining, transporting and fluxing slag-making material in the ore. A modern furnace costs considerably more than a modern concentrating plant both in original outlay and cost of maintenance. When the gangue or worthless part of the iron ore is treated in the blast furnace it must be transported, handled at least twice, melted and fluxed. By removing this gangue at the mine all of the expense of hauling, handling and eliminating in the furnace may be saved, and the ore will command a higher price at the smelter, being a high-grade, uniform ore.

According to present practice, it takes one ton of coke to make one ton of pig iron. Most metallurgists will admit that about 400 lb. of the coke is sufficient to reduce the iron in the oxides, while the remaining 1,600 lb. are used up in melting the pig iron along with a mass of silicious and earthy matter making up the slag. Of course a portion of this waste heat is saved in the form of gas used to heat the air blast, but a large quantity goes to heating, fluxing and getting rid of the slag arising from the gangue matter in the ore. Hence it may be seen that it is better from the metallurgist's point of view to concentrate the ore at the mine rather than in the furnace.

The question thus may be resolved into a business proposition. Will it pay to concentrate the ore at the mine?

If the extra price which the ore brings at the smelter, together with the cost of hauling gangue material in the low-grade ore, is greater than the cost of concentrating the ore at the mine, then the operation will be a profitable undertaking. It cannot be profitable to deliver concentrated ore to the smelter in competition with an equally rich ore in the natural state, the cost of transportation being the same. But rich ores in the natural state are not abundant, so that there is always a chance for the concentrated ore to come into the market.

Methods of Concentration.

Hence it is pertinent to determine the most efficient method of concentrating iron ore at the mine.

The simplest method of concentrating hard iron ores is by hand-cobbing; the laborer breaks up the ore to small sizes with a sledge hammer, picks out the good ore for use in the smelter, and throws the worthless rock on the waste heap. In the case of soft iron ores intermixed with clay, various forms of washers are used. The log-washer used in the Southern United States is a tilted cylinder rotating on its longer axis, with side paddles forcing the ore upwards in a trough against a descending current of water which washes away the clay and fine material through a screen at the lower end, while the washed ore passes to the ore cars at the upper end.

In concentrating hard iron ores the product should have the coarsest possible size together with the highest possible purity, in order to meet the conditions of transportation and use in the blast furnace. The cost of the crushing depends on the fineness of the desired product. The required fineness depends on the physical character of the ore, i.e., whether it is fine or coarse-grained, and whether the gangue is readily detached from the particles of ore. The cost of separating the ore per ton of finished product varies with the richness of the ore. Hence the number of tons of crude ore which must be crushed to a certain size to obtain a certain concentrated product is an item of importance on the cost sheets.

The richness of the ore depends on the amount of gangue material present. A petrographical examination of an ore will give a fair idea of how it will respond to any given system of concentration. Illustrations are given of several samples of ore, some of which are amenable to concentration by coarse, some by medium, and others by fine crushing, while in others concentration is rendered difficult, if not impossible, by the intimate intermixture of rock matter or impurities with the particles of the ore.

It often happens that pyrite or apatite occurs in an ore of high iron content in such proportion as to render the ore of no commercial value. These deleterious constituents may be separated by magnetic concentration, for it is only a matter of how fine it is necessary to crush in order to detach the grains of ore from the grains of the other constituents. For example, an ore, such as is shown in the cut, in which the pyrite shows as light colored stringers and segregated masses, while the ore itself is dark-colored, requires only medium fine crushing about 0.25-inch diameter to separate the pyrite from the ore. Another specimen shows a dark-colored, dense magnetite with fine particles of pyrite disseminated through the mass. In the photograph these particles are distinguished by their light color. In this ore it is almost impossible to eliminate the pyrite without very fine grinding, as particles of the ore of even 0.10-inch diameter will have fragments of pyrite clinging to them. Although fine crushing would eliminate the pyrite, the process cannot be a commercial success at present, owing to the cost of fine crushing and the briquetting of the fine ore rendered necessary. When by petrographical means the character of an ore has been determined, it is necessary to ascertain the best method of concentration adapted to its treatment.

Magnetic versus Water Concentration.

If the iron in an ore occurs in such a state that it may be attracted by an electro-magnet, then we have a simple method of separating the valuable ore from the worthless rock. Magnetites are most readily attracted by magnets, hence such ores lend themselves most readily to treatment. By increasing the strength of the current passing through the magnet hematite may also be separated out as magnetic heads from non-magnetic rock matter.

In discussing the merits of water concentration, it may be remarked that local conditions here are against its use. A costly plant consisting of jaw crushers, rolls, screens, jigs, expensive water piping, heating arrangements and large power capacity are necessary. The product is not always high-grade, as the gangue may have the same specific gravity as the ore and it may not be possible to eliminate sulphides and apatite. Iron ore requires handling in large quantity to be profitable, and this entails an expensive plant where water concentration is used. On the other hand, conditions in Canada favor magnetic concentration, as there is abundance of cheap water power available in the iron districts, while no expensive plant is necessary. The electric power may be used in running drills, hoists, pumps, lighting system, compressors for air-drills or crushing machinery, and the product may be hauled to the nearest shipping point by electric trams. Cold weather has little influence on electric power, while condensation of steam and the freezing of water and air-conveying pipes often give trouble during a cold season.

The magnetic permeability of different minerals has been worked out by Walter Crane, (Transactions of American Institute of Mining Engineers, 1901) who arranges the most magnetic minerals in descending order of permeability, thus :—Magnetite, franklinite, ilmenite, pyrrhotite, hematite, siderite, limonite.

The ideal method of crushing an iron ore for magnetic concentration would be to detach the different grains from each other without further crushing. Granulation should be the rule rather than pulverization, for two reasons : (1) It is a waste of energy to reduce the ore finer

than is necessary, (2) Fine ore as dust is not desirable for use in the blast furnace. Hence in any system of concentration the essential point is to find out what degree of fineness is necessary to release each individual particle from its neighbor. If the crushing is too coarse, in many ores a magnetic portion will drag a non-magnetic portion attached into the heads, thus lowering the quality of the product. If the ore is crushed too fine, there will be an adhesion of magnetic particles to the non-magnetic, thus preventing a clean separation unless the ore is handled in water as by the Grondal-Delvilk or Heberli separators, or separated by air blast as in some of the dry separators. Besides, the ironmaster objects to using ore in the form of dust in the smelter. Hence it may be seen that each ore is a problem in itself requiring careful experimental investigation to determine the best method of treatment including the size of grain, the kind of separator best adapted, the pole distance, etc.

An encouraging feature of magnetic concentration is that sulphur in the form of pyrite, and phosphorus in the form of apatite, may be eliminated from many iron ores, thus producing a Bessemer grade. Sulphur in the form of pyrrhotite cannot be separated from magnetite, nor can phosphate of iron and phosphide of iron be readily eliminated, as they are more or less magnetic and go into the heads. Experiments conducted by the writer have shown that in some titaniferous ores the titanium may be eliminated, as ilmenite is not so magnetic as magnetite. In a pure ilmenite it is impossible to reduce the percentage of titanium by magnetic concentration.

Present Status of Magnetic Concentration.

The application of electro-magnets to the concentration of iron ores is not a novel idea, but its use on a commercial scale has been extended within the last 15 years.

In 1865 the late Dr. Sterry Hunt of the Canadian Geological Survey proved that concentration by magnets was successful on the iron sands on the north shore of St. Lawrence river. A charcoal iron smelter was started at Moisie which made a good grade of charcoal iron, but the product could not compete in price with Swedish iron, and the project was abandoned.

The different types of magnetic concentrators which have met with more or less commercial success may be divided into four classes :—

(1) Those with the ore on conveying belts either traversing magnets or traversed by magnets. Examples are the Conkling, Wetherill, Chase, Hoffman, Kessler, and similar machines.

(2) Those with the ore on a revolving cylindrical drum within which are the magnets. Examples are the Ball-Norton, Heberli, Wenstrom, Buchanan, Sautter, Siemens, Payne and other similar apparatus.

(3) Those in which the ore falls vertically past magnets. Examples are the machines of Edison, Heberli, Grondal-Delvik, Rowand, etc.

(4) Those in which static electricity is utilized, materials conducting the charge being repelled from those which do not become magnetized. The only example is the Blake-Morscher type recently invented, and used at the Colorado Zinc Works for separating zinc from lead ores.

It is beyond the scope of this paper to discuss the relative merits of the various machines, but a brief description of a few in commercial use at some time may be of interest.

Types of Conveying-Belt Separators.

The Conkling separator is an endless travelling belt with three cross belts running at right angles to the main belt beneath magnets of different strength, delivering different grades of ore. The non-magnetic tails are carried along the belt. This machine does not appear to have had much success. An improved form as described in Transactions of American Institute of Mining Engineers, 1890, was used at the Tilly Foster mine, in New York State, with good effect.

The Wetherill separators are made in several different forms adapted to suit requirements. Two types used at the magnetite mines of Witherbee, Sherman & Co., Port Henry, New York, for concentrating a magnetite carrying silicious matter and apatite may be described. The Rowand type is designed for highly magnetic ores The crushed ore falls from a zig-zag delivery spout, thus shaking up the particles, past a revolving drum composed alternately of brass and iron and magnetized by induction from the permanent magnet. The non-magnetic particles fall past the magnet, while the magnetic portions are held to the periphery till the centre of the lines of magnetic force between the magnets is reached, and as this zone is neutral the particles fall. Provision may be made to classify the material into several grades by baffles. The construction of the rapidly revolving drum may also be seen in the plate, showing that a secondary concentration takes place, the magnetic material arranging along the bands of iron while the non-magnetic is thrown into the alternate spaces along the bands of brass. There is also a concentration of the lines of force at P owing to the point of the magnet projecting, and as all material passes through this field of strong magnetic forces, it may be seen that there is little iron allowed to escape in the tails, while only a weak current may be necessary owing to the concentration of the force.

This type of concentrator is used at Port Henry, treating a crude ore carrying about 45 per cent. iron and consisting of magnetite, apatite, hornblende, quartz, etc. The ore is crushed to 0.25-inch, sized and passed through the magnetic separator which delivers heads carrying 69 per cent. iron. The tailings are passed through a Rowand (Wetherill system) cross-belt machine, removing the hornblende as a magnetic product and leading the tailings as almost pure apatite which is sold to fertilizer makers. The last-named machine designed for treating weakly magnetic material is shown in the illustration. The cross belts run under very strong magnets and deliver material according to the strength of the magnet, while the non-magnetic material passes along the wide belt as tailings. The writer saw this machine in operation on a sample of monazite sand, removing ilmenite as one product, and cerite earths as a second product, leaving garnets, quartz, etc., as tailings.

The separators made by the Wetherill Separating Company in one form or other are able to remove garnets from corundum, silicious matter, pyrite and apatite from iron ore, and garnets from diamonds as at DeBeers Mine, Kimberly, South Africa. The concentration of monazite sand by these machines gave an impetus to the industry of collecting rare earths for use in making incandescent mantles for lighting, while the concentration of zinc ores such as franklinite at Franklin Furnace, New Jersey, is being done on a large scale. The machines will no doubt find still further industrial uses.

THE BALL-NORTON DRUM MACHINE.

The Ball-Norton separator in practical use for the last 10 years has according to the inventor, Mr. C. M. Ball, Rockaway, New Jersey the following distinguishing features :—

(1) A stationary range of magnetic poles of alternately opposite polarity in the direction of the ore travel ; beneath these the drums enclosing the two groups into which the range of poles is divided may be rotated and may serve as carriers of the granulated ore, the iron particles being held upon the under side thereof by magnetic attraction.

(2) Means for applying a counter current of air to the moving mass of ore while it is suspended upon the under side of the rapidly running drums and being driven along through the machine.

(3) Provision for classifying the ore into three grades, this being done by a differential speed of rotation of the two drums, assisted by relative adjustments of the strength of magnetism in the two groups of alternating magnets.

The crushed ore is fed into the hopper at the right, the tails falling directly beneath, while the larger and stronger magnet carries magnetic material to the second or weaker magnet where a middle product consisting of ore mixed with rock matter attached falls down into the hopper at the left. A blower forces air in the opposite direction of the ore travel. The particles of ore are tumbled about while suspended on the underside of the drums by being passed through magnetic fields of successively opposite polarity. Gravity, centrifugal force and a counter current of air act at the same time to eliminate the non-magnetic particles. The writer recently visited the concentrating plant of the Hibernia mines, New Jersey, where the Ball-Norton machines are in use. At this mine there is some 80,000 tons of refuse ore consisting of magnetite, hornblende, quartz, etc., being the result of several years of hand cobbing. The refuse ore carrying 40.34 per cent. iron, as shown by samples taken by the writer, is crushed in jaw crushers, passed through rolls and trommels with slots of 0.25-inch diameter, the oversize passing through finer rolls. The whole product from the rolls goes to a Ball-Norton separator delivering three products, samples of which taken by the writer show as follows :

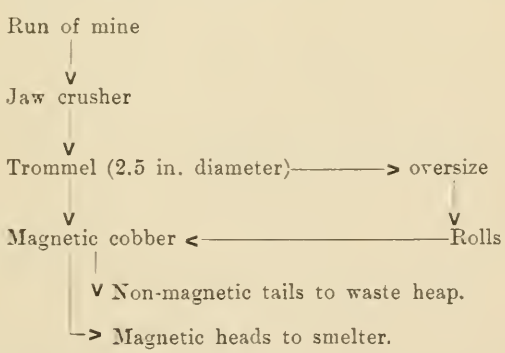
(1) Tails carrying 7.08 per cent. iron, (2) Middles carrying 48.03 per cent. iron, (3) Heads carrying 63.40 per cent. iron. The heads are delivered to ore cars going directly to the smelter. The middles are re-crushed by finer rolls and again passed through the separator. The waste rock, worth 25 cents a ton at the mine, is sold for concrete and building purposes.

At this mine there is also in operation a magnetic cobber, built by Mr. C. M. Ball of Rockaway, New Jersey, which cobs the ore classed as run of mine. The ore is fed from the skips to large jaw crushers, through trommels with slots of 2.5-inches diameter, and to the cobber consisting of a cylindrical magnetized drum around which an inclined belt travels. The crushed ore, consisting of coarse and fines, falling on the belt is divided into non-magnetic tails falling directly down past the end of the drum to cross travelling belts which lead to the waste piles. The magnetic particles cling to the belt till they reach the lowest point of the cylinder, where the magnetism ceases, the ore falling on cross conveying belts leading to ore cars. Samples from the magnetic cobber taken by the writer show :—

Heads : coarse ore, 2.5-inches diameter 43.86 per cent. iron ; fine ore, 53.43 per cent. iron.

Tails : coarse rock, 6.82 per cent. iron ; fine rock, 13.45 per cent. iron.

The scheme for cobbing may be shown thus :



The Ball-Norton separators have been used for some years at the Chateaugay mines in northern New York State, treating some 10,000 tons per month. The ore carries 38 per cent. iron, and is difficult to mine while the smelters are some distance away, so that costs run up high. The only saving factor is that the concentrated ore is uniformly high-grade, carrying 66 per cent. iron. The mine was obliged to quit operations before magnetic concentration was used, as neither Hartz jigs nor hydraulic classifiers gave satisfactory results. The ten magnetic

separators installed produce one ton of concentrates, carrying 66 per cent. iron from two tons of crude ore, carrying 38 per cent. iron. It is necessary to crush the ore to 0.25-inch diameter for treatment.

Ball-Norton separators have also been used at the Benson mine, Port Henry, Arnold Hill, Ferronia in New York state, Svarto in Sweden, and elsewhere.

OTHER FORMS OF DRUM SEPARATORS.

The original Buchanan separator consists of double rolls going in opposite directions, and forming the ends of a horseshoe magnet. The ore, entering at the top, is divided into tails falling down vertically, and the concentrates are deflected by the magnets.

The Buchanan separator is for coarse ore, about 0.50-in. diameter. The large drum, with magnets on either side, rotates to the left, carrying ore fed on the left side upwards against gravity and centrifugal force. Magnetic particles clinging to the ascending surface of the drum, are carried over the top, passing to a second magnetic field and allowing non-magnetic particles to fall vertically, while the rich ore, clinging to the drum, falls into a chute further down. The rich tailings falling from the right side of the large drum are passed over the small drum of intense magnetic power which holds the magnetic portions till they reach the underside of the drum, while the non-magnetic material falls vertically from the side. The Buchanan system has been used at Hibernia mines in New Jersey, Croton in New York, Michigamme in Michigan, and elsewhere.

The Wenstrom separator is a single cylinder with alternate strips of magnetic and non-magnetic material forming the periphery. Ore falling from the hopper comes in contact with a magnetized portion of the periphery, allowing the non-magnetic material to fall vertically as seen in the plate, while the magnetic particles cling to the belt until they reach a demagnetized portion, where they fall. This separator was first used at Hjuljern, Sweden, in 1885, and has since been used with success at Dannemora, Grangesberg, Gellivare, Lulea and other mines. In America it has been operated at Mineville, Michigamme, Cranberry lake, etc.

The Heberli separator is adapted to complex magnetic ores. This separator allows a clean separation, combining hydraulic classifying with simultaneous magnetic concentration. While used in Germany, it has not yet been introduced in American practice.

EDISON STATIONARY MAGNET SEPARATOR.

The Edison separator is a stationary magnet, past which the ore falls by gravity The non-magnetic tails fall vertically past the magnet while the magnetic heads are deflected by it. The writer recently visited the mines near Edison, New Jersey, where a large plant had been in operation in 1897, but found the plant dismantled, although accurate information as to the method of concentration was obtained.

The problem which the renowned inventor, Mr. T. A. Edison, sought to solve was the enormous one of quarrying a rock carrying about 25 per cent. magnetite, crushing it fine, separating magnetically the particles of magnetite from the rock, further eliminating the apatite from the magnetite by air blast, forming the clean pulverized ore into briquettes, and shipping the product to local furnaces at a cost below that at which lake Superior ores could be delivered so that they might be able to compete with Pittsburg furnaces using cheap lake ores.

The ore was quarried by blasting 2-inch holes 8 feet apart, 20 feet deep, and 12 feet back from the working face. The ore, often thrown out in masses weighing 5 tons, was loaded by a steam shovel to skips dumping into giant rolls 6 feet in diameter with 6 feet face, passing thence to three successively finer rolls delivering ore crushed to 0.5-inch diameter and finer, and then elevated to a vertical dryer 50 feet high and 9 feet square, with alternate cast iron shelves tilted downwards at 45°. The dried ore was elevated to a stock house and sent to rolls,

screened to 14-inch mesh, the oversize returning to rolls while the fines were allowed to fall past a series of horizontal magnets, deflecting magnetic particles carrying 40 per cent. iron, and allowing the tailings to fall vertically. The concentrates were dried, crushed to 30-mesh, and treated by a second series of magnets delivering concentrates carrying 60 per cent. iron, which were exposed to an air blast eliminating the apatite as dust, and passed to a third series of magnets, thus making a final concentrates carrying 68 per cent. iron and tailings which were recrushed and returned to the magnets. The final concentrates after being mixed with rosin-soap as a binder were briquetted into blocks 3 inches by 1.5 inches, which were heated in drying ovens to 600° F. to render them waterproof, hard to endure handling, porous to allow furnace gases to penetrate, and non-friable to resist the action of the furnace.

The capacity of the plant was 300 tons rock per day, one quarter of which was made into ore briquettes, the remainder, worth 25 cents per ton, being sold for building purposes.

The raw material was handled entirely by machinery. Some trouble was found in getting a suitable bond which would stand the action of the furnace. Operations were suspended, as being too expensive to compete with lake ores, but it seemed to be the opinion of a few in the district that the concentration would be profitable if at any time the price of lake Superior ores should advance in price 80 cents a ton or more.

THE GRONDAL-DELVIK SEPARATOR.

The Grondal-Delvik separator is adapted to finely-crushed magnetic ores, water being used to clean the dust from the concentrates.

This separator is being used at Pitkaranta, Finland, treating low-grade iron ore carrying about 30 per cent. magnetite. As the work is a remarkable example of what is being done by magnetic concentration, the following condensed translation made by the writer from descriptive articles in the *Oesterreicheische Zeitschrift fur Bery und Hutten wesen*, Feb. 4, 1899, and Aug. 10, 1901, may be of interest :—

The lean magnetic ore carries also zincblende, chalcopyrite, pyrite and pyrrhotite, and contains about 25 per cent. iron and 4 per cent. sulphur. The gangue is hard serpentine, and fine grinding is necessary to free the sulphides from the magnetite. Rolls gave poor results, and dry grinding in ball-mills had many objections, so that Grondal ball-mills grinding the ore in water was adopted with success. The plant consists of 4 jaw crushers, 8 Grondal ball-mills, 8 Grondal magnetic separators, etc. The capacity of each separator is 30 tons per day, requiring a current of 6 amperes 31 volts and consuming 0.50 horse power. The concentrates, carrying 68 per cent. iron and 0.18 per cent. sulphur, are made with a loss of about 1 per cent. of the magnetite. The concentrated ore is moistened with water, pressed into bricks by a Dorsten dry press making 1,500 bricks per hour and using 2 horse power. The bricks are heated in a gas-fired kiln for 15 minutes to the sintering point, rendering them hard, porous, entirely free from sulphur, and readily reduced in the blast furnace near the works. The cost of a plant making 150,000 tons of bricks per year and using 150-h. p., is estimated thus :—

2 crushers	$ 1,250 00
2 elevators	700 00
8 ball-mills	8,900 00
8 separators	6,700 00
Dynamo and electrical equipment	700 00
Pump, 150 gallons per minute	375 00
Shafting, belting, etc	2,225 00
Buildings	3,750 00
Incidentals	4,325 00
Total	$28,975 00

The Blake-Morscher system of ore dressing by means of static electricity was recently invented by Prof. L. J. Blake. The method consists in passing crushed ore over a charged metallic surface Such ore particles as possess relatively high conductivity are instantly repelled, while those of relatively low conductivity are not repelled till sufficient time has been given for pulling them out of their original path, thereby causing a separation. The method is said to be successful in treating iron ores, and the apparatus is cheap and simple.

Finely Divided Ores in the Blast Furnace.

An argument often brought forward against the concentration of iron ores is that the concentrated product is usually too fine for use in the blast furnace without previous briquetting. It appears to be a fact that the continued use of ore in the shape of dust causes irregular fusion with formation of gas-pockets, slips and often explosions doing more or less harm. The trouble due to loss of ore as flue dust appears to be minimized in the latest forms of blast furnaces such as those used in the Pittsburg district working on straight Mesabi soft ores.

Aware of this objection, the writer visited several of the iron smelting centres in the United States and also some Canadian furnaces to ascertain the present practice regarding the use of fine ores in the blast furnace. The results of his inquiries convinced him that very few sound arguments can be adduced against the use of finely divided ores in the furnace without briquetting. One metallurgist stated that he would prefer to use ore as fine as 0.25-inch diameter, as he could then get a uniform product, but that it was too expensive to crush lump ore.

In the Pittsburg district the writer saw furnaces each producing 700 tons of pig iron daily, using entirely soft Mesabi ore, some of which would be as fine as dust if dried. The only trouble in using this ore was an occasional slip or explosion, which might possibly have been avoided by close attention to the stack and the blast.

At the Wharton Furnaces, New Jersey, magnetic concentrates are used along with lump ore. The lump ore is heated by waste gas before it goes into the stack to reduce the size of the lumps, as it is claimed that small sizes such as 2 inches in diameter work better in the furnace than the lump. At Oxford Furnace, New Jersey, magnetic ore is used entirely, and the lump ore is calcined in Gjer's vertical kilns to eliminate the 1 per cent. sulphur in the ore, and to reduce the size of the lumps so that they will allow the furnace gases to penetrate.

In the Scranton district there appears to be no objection to the use of concentrated ore up to 50 per cent. of the ore in the charge.

Mr. E. S. Moffatt, manager of Lackawanna Iron and Steel Company, Scranton, Pa., relates his experience with concentrated ore for a period of 6 years, (Transactions of American Institute of Mining Engineers, vol. 20, page 583) and states that a uniform product is secured by using concentrated ore and that loss in flue dust was inconsiderable.

At the Port Henry furnaces, according to Mr. Langdon, who was connected with the works, concentrated magnetic ore from Mineville was used up to 80 per cent. of the ore making up the furnace burden. The fine ore used less fuel and gave no more trouble in smelting than lump ore.

According to official statistics 108,847 tons of iron ore concentrates were used in the United States during the year 1901. This is relatively a small consumption, as most of the furnaces are located within easy access of lake ores and coke, while the mines producing concentrates are somewhat distant from the supplies of coke. It appears to be certain that many mines in the Eastern States would be opened up and concentrating plants installed if at any time the supplies of cheap high-grade ores from the Lake Superior country should be diminished.

The ironmasters in Canada do not appear to have any objection to using ore down to 0.20-inch diameter without briquetting. No concentrated ore is being used steadily at Canadian furnaces, although the soft Mesabi ores are sometimes smelted alone. A company has been formed to work the iron sands on the north shore of the river St. Lawrence, but so far has not shipped concentrates in large quantity.

SMELTING FINELY CRUSHED ORES IN EUROPE.

Present practice in Sweden allows the use of fine ores in the blast furnace Experiments conducted some years ago at the expense of the Swedish government proved that finely divided iron ores could be used in making up the furnace burden with no trouble. Most of the large iron mines in Sweden have concentrating plants for dressing the refuse or low-grade ore.

At Pitkaranta, Finland, the concentrated ore in the form of dust is briquetted without using a binder as already described.

The records of German practice state that the ironmasters offer no objection to concentrated ores except that founded on the fine dust. Some of the Spanish ore imported to Germany is quite fine when dried.

The English furnaces appear to be able to handle fine ore successfully. The Dunderland Iron Ore Company is a new company recently formed by English capitalists to exploit an immense bed of lean ore in Norway, using the Edison system of concentrating and shipping the product to English iron smelters. The success of this company will be watched with interest.

Various schemes have been proposed for the briquetting of fine ore and flue dust. The Yeadon press has been used with success in England, and there are two presses on the American market, both being used on flue dust. A serious trouble is to get a bond that will answer all the requirements. The binding material must be cheap, while the briquette must be firm to endure handling, porous to allow furnace gases to penetrate for the reduction of the iron oxides, waterproof to allow shipping, and non-friable to resist the action of the upper part of the furnace so that it will not crumble before reaching the zone of reduction.

The writer spent some time experimenting with different bonds, and it may be said that organic bonds are unsatisfactory owing to decomposition and burning away of the carbon before reduction of the iron oxides can take place. Among the organic binders which have been suggested are molasses, sugar, starch, tar, dextrine, rosin, rosin-soap, linseed oil, etc. Silicate of soda makes a good bond, but it is too expensive. Clay stands the action of the furnace and is cheap, but the briquettes are not porous, so that a slag rich in iron may be formed from the briquette. Milk of lime is the most servicable binder, being cheap and of value in smelting, but the briquettes are more or less liable to disintegrate in the upper part of the furnace before fusion takes place.

A. D. Elbers has recently patented a method of forming lump ore from the soft Mesabi ore by calcining the raw ore in tilted rotary cylindrical furnaces, such as are used in making Portland cement clinker. The moisture (12 per cent.) in the ore is eliminated and the dry particles fritted into masses by using blast furnace slag as a binder and waste gas from the furnace as fuel. This method might be used with profit on concentrated ore carrying sulphur if the heat in the cylinder is sufficient to eliminate the sulphur.

M. Ruthenburgh advocates the fritting of finely divided concentrates in an electric furnace by a continuous operation (Transactions of American Electro-chemical Society, vol. 2, 1902), with a subsequent heating of the fritted mass in an open hearth furnace to produce steel.

Oscar Daube describes a process for smelting finely divided iron ores in Engineering and Mining Journal, October 4th, 1902. The fine ore with the highest purity is mixed with coal dust, and coked in a coking oven, forming a metallic sponge ready for the blast furnace. A magnetic ore containing by analysis, metallic iron 71.08 per cent., silica .22 per cent., phos-

phorus .03 per cent., and titanium dioxide .42 per cent., gave after treatment a sponge analysing carbon 42 per cent., iron 37 per cent., and limestone 18 per cent., with ash 8 per cent.

This sponge made excellent iron when reduced. Flue dust and roasted ores may be similarly treated. The coking takes 24 hours and the gases formed are used to heat the oven, leaving an unused surplus.

Opportunities for Magnetic Concentration in Ontario.

Possibly the best opportunity to make magnetic concentration a profitable undertaking is in treating silicious ores free from sulphur, and carrying only traces of phosphorus, so that a pig iron can be made carrying less than 0.03 per cent. phosphorus from the clean concentrates. Such pig iron commands a high price in the market, being used especially for making tool steel and crucible steel. Pure concentrated ore should also find sale at the furnace making charcoal pig iron. In the writer's view it is more advisable to introduce the separation by using the Swedish method of working over old dumps rather than begin by treating run-of-mine ore.

During the past six years the writer has had the opportunity of inspecting the various iron ore deposits in Ontario, among them several large deposits of low-grade ore of no commercial value owing to low iron contents, or the presence of deleterious ingredients, such as sulphur, phosphorus or titanium.

As early as 1890 Mr. A. Blue, secretary of the Royal Commission reporting on the Mineral Resources of Ontario, called attention to the progress made in magnetic concentration of iron ores, and advocated its use in Ontario.

An attempt to concentrate ores in Hastings county was made not long after by Mr. S. J. Ritchie, of the Anglo-American Iron Company at Trenton, where he proved that certain ores were amenable to magnetic concentration on a commercial scale. At that time there were no local smelters, and it was not profitable to ship the concentrates to American furnaces, so that the project was abandoned. Now there are three smelters in operation in the Province and two are being built, so that there is a chance of utilizing the low-grade ores, provided they can be put on the market at a low cost.

Practice in magnetic concentration has shown that each ore is a problem in itself, as there are several factors to be considered, such as hardness, texture and composition of the ore, freedom of concentrates from impurities, amenability to concentration, etc. Accordingly the writer secured samples of several varieties of magnetic iron ores found in Ontario and submitted them to complete examination as further described, to ascertain whether the grade of each ore could be raised by magnetic concentration. The only magnetic separator at his convenient disposal was a Wetherill one-pole machine used for removal of magnetite from corundum. The experimental results do not determine which is the best system for each individual ore, but only show that some ores are more amenable to magnetic concentration than others.

Preliminary tests as follows were made on the machine to determine its efficiency :—

(1). A crushed sample sized to 0.25-inch diameter, containing 60 parts magnetite, 12 parts patite, 18 parts hornblende and 10 parts pyrite, was passed through the Wetherill separator. It was found that the magnetite came out as heads fairly pure and free from the non-magnetic constituents passing out as tailings. By re-treating the magnetic heads a pure product was obtained, while but little of the magnetite escaped as tailings. The constituents were re-combined and crushed to 0.05-inch diameter and passed through the machine. The magnetic heads had particles of the other constituents adhering, while the tails had some magnetite enclosed in particles of rock. The results showed that this machine is not adapted to finely crushed ore, hence in some cases the heads were re-treated with results noted further on.

(2). A sample of ten parts magnetite with four parts pyrrhotite was passed through the

machine, the larger part of which came over as heads in spite of different adjustments of pole distance and strength of magnetic force. A confirmatory test was made on Coe Hill ore carrying four per cent. sulphur in the form of magnetic pyrites or pyrrhotite. The heads proved to carry more sulphur than the ore, showing that most of the pyrrhotite went into the heads along with the magnetite, leaving the silicious rock matter as tailings. It is practically impossible to eliminate pyrrhotite from magnetite by magnetic separation.

(3). Iron-bearing sands consisting of quartz, garnets, ilmenite and magnetite from the north shore of the St. Lawrence river where passed through the separator. Pure magnetite was delivered as heads while the tails carried all the other constituents. This proves the possibility of eliminating ilmenite from magnetite if the grains are distinct from each other.

Experimenting with Magnetites from Mayo.

Knowing the efficiency of the machine, experiments were made with ore at different sizes, some of which gave excellent results. In all the analytical determinations the metallic iron is that found as magnetite, as the iron in silicious residues was not estimated. This is the proper way to estimate iron in records of magnetic separation, as iron in combination cannot be considered as ore in any case.

Sample A consists of refuse low-grade ore from No. 1 pit, Mayo township, Hastings county, worked by The Mineral Iron Range Mining Company, Limited, L'Amable Station, Ont. The ore body lying between gneiss and a dike of diorite averages 10 feet wide and extends 200 feet so far as opened up. Along the walls there is more or less low-grade silicious ore which does not carry enough iron to be worth shipping, so it is thrown aside at the mine where a considerable pile has accumulated. The object of the experiment was to determine whether any means could be got of putting the magnetite in the ore in saleable form.

A hand specimen contains finely granular magnetite intermixed with hornblende, quartz, calcite, epidote and black mica. No visible apatite or sulphides are present, nor can these be detected by the microscope. It was difficult to make a section for microscope use owing to crumbling of the particles, but a small section showed nothing not apparent in the hand specimen. An average sample shows by analysis :—Fe. 35.52 per cent. ; S. 0.02 per cent. ; P. 0.01 per cent. ; Ti. none.

100 lb. of the ore was crushed by jaw-crushers and rolls so as to pass through a sieve of 0.40-inch size of hole, Sizing the product gave the following results :

Sample.	Size, inch.	Weight, lb.	Iron contents (as magnetite) per cent.
A1	0.40	14	32.11
A2	0.30	21	32.88
A3	0.20	13	38.77
A4	0.10 and finer	44	43.27

The ore was quite friable and crushed easily. Treatment of samples in the machine yielded the following results :

Sample.				Heads.		Tails.		Current.	Pole distance.
No.	Size.	Wt., lb.	Fe., per cent.	Wt., lb.	Fe., per cent.	Wt., lb.	Fe., per cent.	Ampere.	Inch.
A1	0.40	13	32.11	9.	38.50	4.	17.31	1.	2.
A2	0.30	17.75	32.88	16.5	36.22	1.25	8.23	1.	2.
A3	0.20	11.5	38.47	10	49.14	1.5	10.51	.8	1.7
A4	0.10	43	43.27	18	70.03	25.	6.88	8	1.7

The experiment showed that the finer the ore is crushed the better the separation, owing to the particles of ore being entirely freed from particles of rock. The concentrated ore from A4, the most finely crushed sample, is about as pure an ore as it is possible to get, the iron content of theoretically pure magnetite being 72.40 per cent.

Sample B consists of run of mine from pit No. 2 worked by the same company, the pit being situated in Mayo township about a mile from No. 1. The ore is very pure magnetite as segregations in actinolite and more or less intermixed with mica and calcite. The deposit from which the sample was taken is 10 feet wide, extending some 100 yards so far as opened up. The wall rocks are a micaceous schist and gneiss. There is a clean separation of the ore from the wall rocks, and the ore is quite uniform. There is no evidence of apatite, pyrite or pyrrhotite present.

The ore analyzes: Fe. 51.22 per cent., S. 0.01 per cent., P. 0.02 per cent., Ti. none.

The object of the experiment was to prove the possibilities of coarse concentration on this ore; 100 lb. tr ated in the same way as A gave results as follows:

Sample.	Size, inch.	Weight, lb.	Fe., per cent.
B1	0.40	33	51.34
B2	0.30	23	51 75
B3	0.20	14	51.11
B4	0.10	27	51.42

The ore crushed readily owing to the more or less crystalline structure of the magnetite.

The different sizes were subjected to magnetic concentration with the following results:—

Sample				Heads.		Tails.		Current.	Pole Distance.
No.	Size.	Wt., lb.	Fe., per cent.	Wt., lb.	Fe., per cent.	Wt., lb.	Fe., per cent.	Ampere.	Inch.
B1	0.40	27	51.34	20	58.59	7	22.33	1	2
B2	0 30	21.5	51.75	17	60 71	4 5	21.35	1	2
B3	0.20	12	51.11	9	65.94	3	11.20	1	2
B4	0.10 and finer	27	51.42	18.7	70.40	8.3	4.89	0.8	1.8

The results show that the finest crushing gives very pure heads with a small loss of ore in the tails; this ore is very amenable to magnetic concentration, and if crushed to 0.25-inch, which is about the finest that the blast furnaces will take in large quantity without briquetting, it should give a product running 68 per cent. iron. The cost of the operation depends on the style of machine used. This ore is in many respects like the ore being treated at Wharton Mines, New Jersey, and should be treated in the same way.

A Non-Concentrating Ore.

Sample C is selected ore from a deposit of magnetite in Ontario, consisting of black, dense, hard ore as free from rock matter and pyrite as is possible by hand cobbing. The impurities showing in a hand specimen of the ore are pyrite scattered as fine grains and stringers, and a little greenish hornblende. Pyrrhotite and apatite appear to be absent. The object of the experiment was to eliminate if possible all of the pyrite from the

ore so as to bring it to Bessemer grade. This cannot be done by hand cobbing as may be seen by analysis of the samples. Inspection of hand specimens shows that fine crushing is necessary to free the magnetite from the pyrite.

The ore was crushed to pass a screen with 0.20-inch holes and passed through the magnetic separator with the following results :—

Sample C1 : Product of 0.20-inch diameter ; current to magnet, 1 ampere ; pole distance, 2 inches ;

—	Weight, lb.	Fe., per cent.	S., per cent.
Average Ore	6.5	47.30	0.53
Heads	4.5	59.67	0.15
Tails	2	18.64	1.11

Sample C2 : Product of 0.10-inch and finer ; current, 0.8 amp. ; pole distance, .8-inch.

—	Weight, lb.	Fe., per cent.	S., per cent.
Average Ore	30 5	40.59	0 56
Heads	20	63.80	0.11
Tails	10.5	11.1	1.17

The results show a reduction of sulphur, but not to Bessemer grade, with a concurrent rise in the iron contents due to elimination of the silicious matter. Microscopic examination of the heads revealed particles of pyrite clinging to particles of magnetite and being the source of the sulphur shown by analysis in the heads.

This ore may be said to be amenable to magnetic concentration, but it cannot be brought to Bessemer grade by any method so far known without fine grinding and briquetting of the roasted concentrates, an operation which is scarcely advisable to undertake until the supply of naturally high grade ores is more nearly exhausted.

Sample D consists of magnetite from the refuse dumps at the same mine heavily impregnated with pyrite both as fine grains and as segregations. The plate is a photograph of the ore, the black parts being magnetite and the white pyrite. The object of the experiment was to determine the possibility of concentrating the refuse ore to Bessemer grade. An average sample shows the following contents :—Fe. 54.50 per cent.; S. 1.43 per cent.; P. 0.03 per cent.; TiO, none.

The ore was crushed as usual giving the following results :—

Sample No.	Size, inch.	Weight, lb.	Fe., per cent.	S., per cent.
D 1	0.30	1	54.62	1.39
D 2	0.20	5	55.59	1.49
D 3	0.10 and finer.	20	54.41	1.55

The ore crushed easily, but there was more or less adherence of the silicious matter to the magnetite.

The sized product passed through the separator gave the following results :—

Sample No.	Size, inch.	Weight, lb.	Fe., per cent.	S., per cent.	Current, ampere.	Pole distance, inches.
D1, average	0.30	1	54.62	1.39	1	2
D1, heads	0.30	0.8	58.10	1.16	1	2
D1, tails	0.4	0.2	24.37	4.23	1	2
D2, average	0.20	4.25	55.58	1.49	1	2
D2, heads	0.20	3.50	55.59	1.49	1	2
D2, tails	0.30	0.75	22.29	4 33	1	2
D3, average	0.10 and finer.	17	54.41	1 55	0.8	1.7
D3, heads	0.10, etc.	14 5	63.20	0.75	1	2
D3, tails	0.10, etc.	2 50	16 80	5.33	1	2

The results show considerable loss in the tails which can be avoided by using a 3-part machine delivering middles for re-treatment. There is considerable reduction of the sulphur, especially in the finest sizes where the particles of pyrite are distinctly separated from the particles of magnetite. It does not seem possible to raise such ore to Bessemer grade by magnetic concentration, but a subsequent roasting of the crushed ore should eliminate the sulphur.

Treating a Jaspery Ore from Temagami.

Sample E consists of silicious low-grade magnetite from a deposit near lake Temagami, obtained from Mr. D. O'Connor, of Sudbury, the veteran prospector in that district. The illustration shows a characteristic sample, the light-colored strips being ore, while the dark are jasper. An average sample shows on analysis : Fe. 40.16 per cent., S. 0.01 per cent., P. 0.02 per cent., TiO. none.

The object of the experiment was to determine the possibility of coarse crushing and magnetic separation as a means of bringing this ore to Bessemer grade. The ore is rather tough to crush and the jasper seems to be partly separate from the bands of ore along parting planes more or less developed, although there is generally silicious matter adhering to the coarser particles of ore. The separation gave the following results :

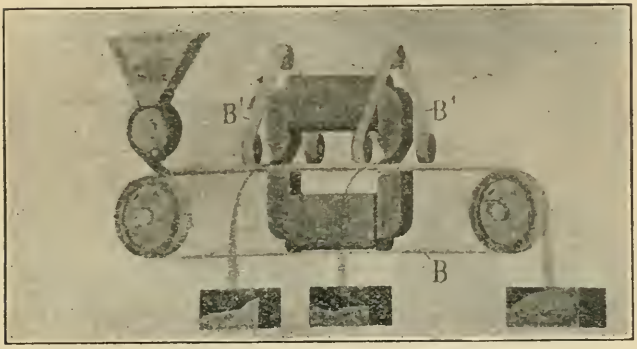
Average sample.				Pole distance, inches.	Heads.		Tails.	
No.	Size, inch.	Weight, lb.	Fe,, per cent.	Current, ampere.	Weight, lb.	Fe., per cent.	Weight, lb.	Fe., per cent.
E1	0.20	5.5	38.94	1	2	47.28	3.5	28.65
E2	0.10 and finer.	12.5	42.89	1	6.5	57.28	6	28.2

The results show that it is possible to concentrate this ore. The cost will depend on the width of the alternate bands. The considerable loss in the tails may be avoided by a 3-part concentration, the middles being re-treated. By passing the heads of E2 through the separator a second time a product carrying 65.20 per cent. iron was obtained.

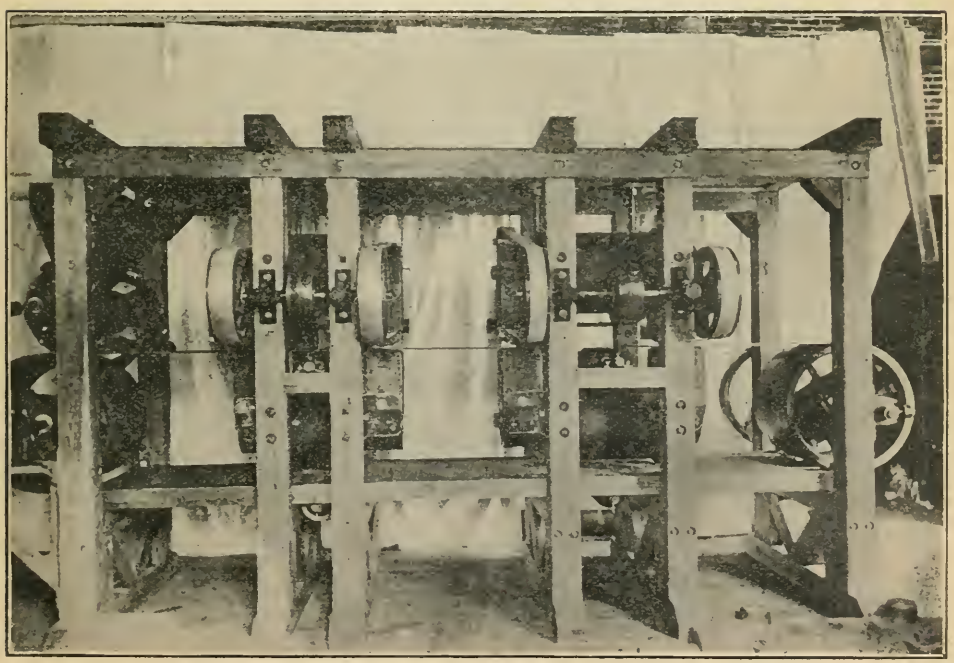
A Low-Grade Calabogie Magnetite.

Sample F was taken from a large deposit of low-grade magnetic ore near Calabogie. Hand specimens show magnetite intermixed with quartz, calcite, hornblende, black mica, chlorite and pyrite. The gangue and the ore are somewhat interlaminated. There is no

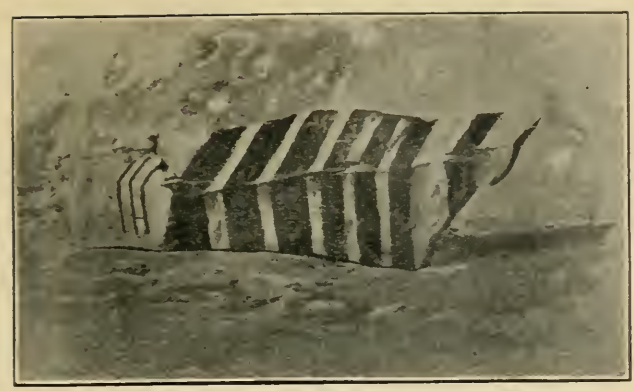
Magnetic Concentration of Iron Ores; concentrating plant.



Magnetic Concentration of Iron Ores; Diagram of Wetherill cross belt magnetic separator.

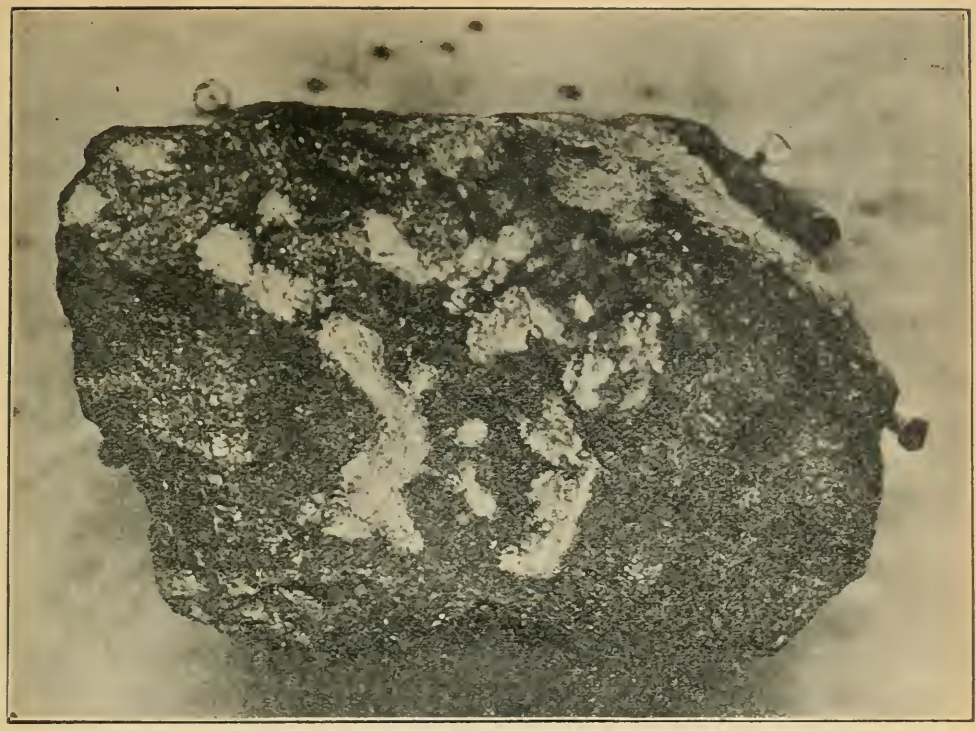


Magnetic Concentration of Iron Ores; Rowand cross belt machine for weakly magnetic material.

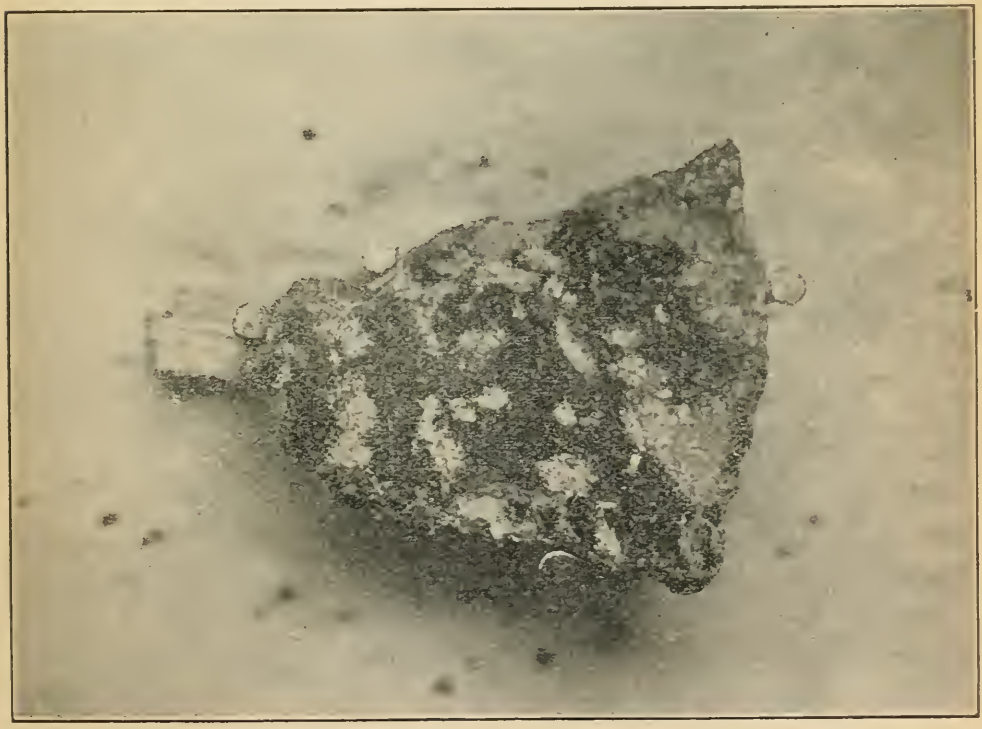


Magnetic Concentration of Iron Ores: Sample of interbanded jaspery iron ore. Magnetite layers light color; jasper dark.

Magnetic Concentration of Iron Ores: Sample of ore amenable to concentration by coarse crushing.



Magnetic Concentration of Iron Ores; Sample of magnetite (black) with segregations of pyrite (white) large enough to be separated by coarse concentration.



Magnetic Concentration of Iron Ores; Sample of ore amenable to fine concentration, but not requiring briquetting of concentrates.

Magnetic Concentration of Iron Ores; Sample of ore amenable to medium coarse concentration.

Magnetic Concentration of Iron Ores: Sample of ore showing massive magnetite (black), and pyrite (white) in grains too small to be removed except by very fine crushing.

visible apatite or pyrrhotite present, and the pyrite is found as scattered grains to be seen in plate which is a sample of the ore carrying more than the usual amount of pyrite. Both the rock and the pyrite show as white specks in the black-colored mass which is mostly ore. The object of the experiment was to bring the ore to Bessemer grade if possible. The ore crushed, sized and separated gave the following results.

Sample No.	Size, inch.	Weight, lb.	Fe., per cent.	S., per cent.	P., per cent.	Current, ampere.	Pole distance, inches.
F1, average.	0.30	4.25	43.23	0 60	0 14	1	2
F1, heads.	0 30	3.75	54.17	0.25	0 09	1	2
F1, tails.	0.5	0.05	17.80	not determined	0.287	1	2
F2, average.	0 20	13.25	44.41	0.54	0.13	1	2
F2, heads.	0.20	12	55.40	0.1	0.087	1	2
F2, tails.	0.20	1.25	17.35	not determined	0 23	1	2
F3, average.	0.10 and finer	37.25	42.38	0 39	0.191	1	1.7
F3, average.	0.10 and finer	37.25	42 38	0.39	0.191	1	2
F3, heads.	0.10etc	33	58 83	0.08	0.147	1	2
F3, tails.	0 10etc	4.25	13.25	not determined	0 87	1	2

The ore crushes readily owing to the laminae and the granular structure of the ore and gangue. The fines from F 3 were retreated, giving a product carrying 65.24 per cent. iron, a result which may be got on a commercial scale by crushing the ore fine and using a separator adapted to fine ores

Mr. F. J. Pope, formerly demonstrator at Kingston School of Mines, has investigated the possibility of removing titanium from magnetic ores by magnetic concentration (Transactions of American Institute of Mining Engineers, 1899). He was unable to get a separation on ore from Eagle lake, Bedford Township, Frontenac county. The magnetic concentration of ore from Pine Lake mine, Victoria county, increased the metallic iron from 43.38 per cent. to 56.45 per cent., but at the same time the titanium dioxide increased from 13.5 to 18.1 per cent. Only partial separation was possible in the case of ore from Chaffey mine, Leeds county. The results show a close combination, either mechanical or chemical, of the titanium with the magnetite. In case of ore with the magnetite more or less crystallized and not in chemical combination as ilmenite, it is possible to eliminate the ilmenite carrying the titanium from the non-titaniferous magnetite. This has been already proved by experiments on the iron sands from Quebec.

It was not considered advisable to spend any time attempting to eliminate titanium from Ontario ores.

Review of Literature on Magnetic Concentration of Iron Ores.

A detailed study was made of the various methods of concentrating iron ores, and a brief review of the following literature consulted may be of interest :—

(1) The Concentration of Iron Ores, by A. F. Wendt in *Transactions of American Institute of Mining Engineers* vol. 13, 1885, page 35. Describes the treatment of magnetic iron ore carrying 33 per cent. iron at the Crown Point mine, near Lake Champlain, New York. The ore passes through crushers, rolls, screens, and to plunger jigs handling 8 tons per hour, yielding a concentrated ore carrying 65 per cent. iron and converting the ore to Bessemer grade by eliminating phosphorus. The total cost is $1.00 per ton of concentrates.

(2) Ore Washer at Longdale, Virginia, by G. R Johnson in *Trans. A. I. M. E.*, vol. 24, 1894, page 34. Describes the log washer used for separating a clay gangue from brown iron ore.

(3) Concentrating Lake Superior Ore, by L. M. Hardenburgh, being a paper read before Lake Superior Mining Institute, Feb., 1900, and reprinted in *Engineering and Mining Journal*, April 21, 1900. Fragmental Pewabic hematite with specific gravity 4.5 occurring in sandstone of 2.6 sp. gr. is treated in Hartz jigs. The fragments of ore found in the sandstone vary from the size of a pea to 200 lb. weight. Twenty per cent. of the ore is saved by hand-sorting ; capacity of the mill is 300 tons of crude ore per day ; 65 horse-power is required with 3 men and 8 boys per shift.

(4) Concentrating Magnetite with the Conkling Jig, by F. S. Ruttmann in *Trans. A. I. M. E.*, vol. 16, 1888, page 609. The ore, carrying about 35 per cent. iron, is crushed dry to 0.25-inch and treated in Conkling jigs each of 5 tons capacity per hour. A sample of stock carrying 43.5 per cent. iron was concentrated to 66.9 per cent. iron with 22.9 per cent. in the tails, showing a saving of 47.4 per cent. of iron in the ore. Cost of treatment not given.

(5) Concentrating Plant for Hematite Iron Ore at Striberg Mine, Sweden, by E. Nordensten in *Teknisk Tidskrift*, vol. 32, page 29. The ore is jigged, giving a rich product. The mill, costing $44,000, treats 100 tons per day.

(6) Washing Iron Ore in Tennessee, by N. W. Buckhout in *Mines and Minerals*, vol. 22, page 304. A limonite iron ore is treated by 3 revolving screens and 2 log washers using 700 gallons of water per ton of ore.

(7) Magnetic Ore Separation at Pitkaranta, Finland, by G. Grondal in *Oesterreichische Zeitschrift*, August 10, 1901. Describes the magnetic separation of a low-grade magnetite carrying 30 per cent. magnetite, 4.5 per cent. sulphur, in the form of pyrite, pyrrhotite, zincblende and chalcopyrite. The gangue is a hard serpentine, and the grain of the ore is so fine that 80 per cent. of the particles of magnetite are not more than 1 mm. diameter. The plant consists of Grondal ball-mills, Grondal magnetic separators, etc. The richest concentrates carry 68 per cent. iron and 0.18 per cent. sulphur, and are briquetted for use in the blast furnace. A description of the Grondal-Delwik method of magnetically concentrating iron ores is given in the same journal, February 4, 1899.

(8) Magnetic Concentration Plant at Svarto Island, by B. H. Brough in *Journal of Society of Arts*, London, Dec. 8, 1897. Describes the concentration of a magnetite with 2 per cent phosphorus as apatite. The ore is crushed, dried, pulverized and run through a Ball-Norton separator, delivering a high-grade ore, while the apatite is sold to make fertilizer.

(9) Notes on the Magnetization and Concentration of Iron Ore, by W. B. Phillips in *Trans. A. I. M. E.*, vol. 25, 1895, page 399. The total cost of treating the ore was $1.15 per ton of concentrates. All the iron was not magnetized, and there was no elimination of phosphorus.

(10) The Chase Magnetic Ore Separator, by H. S. Chase in *Trans. A. I. M. E.*, vol. 21, 1892, page 503. An illustrated account of the Chase separator.

(11) Magnetic Concentration at Tilly Foster, by F. H. McDowell in *Trans. A.I.M. E.*, Vol. 21, page 519. Gives items of cost of treating low grade magnetite. Fe. in the ore, 27.38 per cent. ; Fe. in concentrates, 49.44 per cent.; Fe. in Tailings, 11.00 per cent.; Mill running 208.8 days ; ores used, 34,515 tons ; Concentrates made, 13,066 tons ; 1 ton of concentrates from 2.65 tons of crude ore ; total cost of 1 ton of concentrates, $1.99.

(12) The Granulation of Iron Ore by means of Crushers and Rolls, by A. Sahlin in *Trans. A.I.M.E.*, vol. 21, 1892, page 521. Discusses various types of crushers and pulverizers used on iron ores. Fine grinders as ball-mills are of little value. A comparative test of crushers and rolls versus Sturtevant mills showed the former method to be preferable for granulating iron ores.

(13) Crushing Iron Ores with the Sturtevant Mill for Concentration, by S. R. Krom in *Trans. A.I.M.E.*, vol. 21, 1892, page 530. Describes comparative results of crushing

magnetic iron with rolls versus Sturtevant mill, proving the rolls gave less dust than the mill, which grinds by attrition and hence is not adapted to granulating iron ore for concentration.

(14) Practical Results in the Magnetic Concentration of Iron Ore, by W. H. Hoffman in *Trans. A.I.M.E.*, vol. 20, page 602. Relates practical experience at Croton mine. It cost $1.95 to produce 1 ton of concentrates from the low-grade iron ore including mining, and all other charges. The concentrates were roasted to eliminate sulphur. The crude ore carries 40 per cent. iron, 1.5 per cent. sulphur, 0.30 per cent. phosphorus. The Sturtevant mill was used for granulating the ore, and the claim is made that magnetic concentration of the ore is profitable.

(15) Discussion on the Crushing of Iron Ore, in *Trans. A.I.M.E.*, vol. 21, page 533. Gives different views as to the granulation of iron ore.

(16) The Magnetic Separation of Iron Ore, by C. M. Ball in *Trans. A.I.M.E.*, vol. 25, page 533. Describes the advantages of concentrated iron ore, and seeks to prove that magnetic concentration is feasible under competitive conditions. Shows that the best way of concentrating is coarse crushing, and division into 3 grades with subsequent treatment of the middles. Describes the Ball-Norton separator giving results obtained at Benson mines, New York, thus :

	Magnetite per cent.	Fe. per cent.	S. per cent.	P. per cent.
Crude ore	45.5	32.15	1.00	0.15
Concentrates	88.5	64.0	0.21	0.032
Tails	4.0	2.90		

(17) Southern Magnetites and Magnetic Separation, by H. S. Chase in *Trans. A.I.M.E.*, vol. 25, 1895, page 551. Relates experimental work on magnetic concentration of ore at Cranberry mine, N. Carolina, with the following conclusions : (1) Careful washing, screening and sizing are more important than fine crushing. (2) Each size of material should be concentrated separately with suitable magnetic separators, giving concentrates of Bessemer grade carrying 50 to 60 per cent. iron, and coarse enough to be used as a furnace burden without mixing with other ores.

(18) The Wenstrom Magnetic Separator, by R. A. Cook in *Trans. A.I.M.E.*, vol. 17, page 599. Describes with illustrations the Wenstrom separator used in Sweden since 1885. The cost of concentrating run-of-mine and refuse ore according to Swedish practice is said to be 10 cents per ton of crude ore.

(19). Investigation of Magnetic Iron Ores from Eastern Ontario, by F. J. Pope in *Trans. A. I. M. E.* vol. 29, page 372. Describes the results of experiments to eliminate titanium from titaniferous magnetites by magnetic concentration, showing that a separation is not always practicable, but that in some cases there is a partial removal of the titanium along with sulphur and phosphorus.

(20). The Concentration of Iron Ore, by J. Birkinbine and T. A. Edison in *Trans. A. I. M. E.* vol. 17, page 728. Relates the poor success of jigs in concentrating iron ores and describes five different types of magnetic concentrators with practical results of each, viz :— Buchanan, Wenstrom, Conkling, Monarch, Edison.

(21). The Ball-Norton Electro-magnetic Separator, by C. M. Ball in *Trans. A. I. M. E.*, vol. 19, page 187. An illustrated description of the machine and its operation, with detailed records of excellent results obtained on different magnetic ores.

(22). Magnetic Concentration at Michigamme Iron Mine, Michigan, by J. C. Fowle in *Trans. A. I. M. E.* vol. 19, 1890, page 62. Describes the method used for concentrating mine waste, screenings and wet fines, and gives scheme of crushing, rolling, and sizing by the

Wenstrom and Buchanan magnetic separators. Tabular results with analyses are given, showing the cost of concentrating to be 22 cents per ton. Predicts the further use of this method of concentrating iron ores.

(23). Ore Dressing by Electricity at the Tilly Foster Mine, by F. H. McDowell in *Trans. A. I. M. E.* vol. 19, 1890, page 71. Describes results obtained by the Conkling magnetic separator. The total cost is $2.25 per ton of concentrates for a mill run of six months duration. Does not advise treatment of ore carrying less than 25 per cent. iron.

(24). Progress in Magnetic Concentration of Iron Ore, by J. Birkinbine in *Trans. A. I. M. E.* vol 19, 1890, page 656. An excellent review of results so far obtained, with costs estimated at 50 cents per ton, and sanguine hopes for the future of the process.

(25). High Grade Iron Ores, by W. J. May in *Colliery Guardian* Aug. 12, 1898. Discusses the necessity of dealing with low-grade iron ore deposits by concentrating them at the mine to a high metallic value.

(26). Edison Ore Mines. An interview with T. A. Edison giving an account of the works and process employed in concentrating a very low-grade iron ore published in *Iron Age*, Oct. 28, 1897.

(27). Edison's Revolution in Iron Ore Mining, by T. Waters in *McClure's Magazine*, Nov., 1897. An illustrated account of the application of electricity to the separation of magnetic iron ore from rock matter.

(28). Magnetic Preparation of Ores. by M. Smith. A paper read at the International Congress of Mining and Metallurgy at Paris, France. Extracts reprinted in *Colliery Guardian* July 27, 1900. Gives an illustrated account of the Wetherill process.

(29). Recent Progress in the Wetherill System of Magnetic Separation, by H. A. J. Wilkens in *Mineral Industry*, vol. 10, 1902. Describes with illustrations the various machines used, with results on different material from actual mill experience.

(30). Magnetic Concentration of Iron Ores. A general review of the progress made in Germany and America published in *Stahl und Eisen*, March 15, 1897.

(31). Magnetic Concentration, by Dr. H. Wedding, read before the International Congress of Mines and Metallurgy, Paris, 1900. Published in *Bulletin de la Société de l'Industrie Minerale*, series 3, vol. 14. 1900. An elaborate paper describing some 22 different forms of magnetic separators and the work each has done.

(32). The Hibernia Concentrating Mill, published in *Iron Age*, Aug. 3, 1893. Describes operations at Hibernia mines by the Buchanan system.

(33). Wetherill Magnetic Separation Process, by Prof. W. A. Anthony in *Cassier's Magazine*, March, 1898, page 433.

(34) Comparative Results of Wet Jigging and Wetherill Magnetic Separator, by S. Farbaky in *Oesterreichische Zeitschrift fur Berg und Hutten wesen*, March 26, 1898. Describes results working on a hematite intermixed with quartz and carrying 28 per cent. iron. The results for the two processes are about the same.

(35) Magnetic Concentration at Hibernia Mine, New Jersey, by F. W. E. Minderman in *Engineering and Mining Journal*, vol. 73, page 136. Describes the Ball-Norton system in use at this mine.

(36) Notes on Iron Ores of Canada, by T. S. Hunt in Geological Survey of Canada, Reports 1866-69. Describes magnetic separation of titaniferous iron ores, especially the iron sands on the north shore of river St Lawrence.

(37) Static Electricity Applied to Ore Dressing, by W. G. Swart in *Engineering and Mining Journal*, Jan. 24, 1903. Describes the recently invented Blake-Morscher system of concentration, successful in treating zinc-lead ores in Colorado, and said to be applicable to iron ores.

(38) The Grangesberg Iron Ore Mines, Sweden, published in *Iron and Coal Trades Review*, London, Sept. 9, 1898. Describes the occurrence of the ore, methods of working, separation, etc.

(39) Some Forms of Magnetic Separators and Their Application, by H. C. McNeil' in *Colliery Guardian*, Aug. 18, 1899. Describes with illustrations some of the magnetic concentration plants in Sweden.

(40) Practical Results at Dannemora Mines, Sweden, Using Wenstrom Separator, published in *Journal of Iron and Steel Institute*, vol. 1, 1899, page 243, also vol. 2, 1890, page 672. Describes the satisfactory result obtained.

(41) Concentrating Works at Lulea, Sweden, by B. H. Brough in *Journal of Society of Arts*, Dec. 10, 1897. Describes the concentration works at Lulea, where some 100,000 tons of magnetic ore are concentrated to raise the iron contents and remove the apatite. Wenstrom and Wetherill machines are used.

(42) The Development of the Magnetic Separator, by E. Languth in *Zeitschrift fur Electro-chemie*, Dec. 7, 1899. The issue of this journal of April 5, 1900, contains an article by the same author discussing the principles of electro-magnetic separation.

(43) Magnetic Concentration of the Folkmar Red Iron Ore, by S. Farbaky in *Oesterreichische Zeitschrift fur Berg und Hutten wesen*, March 26, 1898. Discusses the possibilities of concentrating the large body of ore by the Wetherill process with estimates of cost, etc.

(44) Magnetic Concentration of Iron Ore, by K. Erikson in *Jernkonterets Annaler*, vol. 57, pages 1–64. A full account of the subject of magnetic concentration.

(45) The Froding Magnetic Separator. Described in *Teknisk Tidschrift*, vol. 32, page 6. This is a new magnetic separator in use at Herrang concentration works, Sweden. It costs $700 to build the machine which treats 2 tons of ore per hour, yielding from a crude ore with 25 per cent. iron, a concentrated product running 63 per cent. iron, the tailings carrying only 8 per cent. iron.

(46) Experiments on Concentration of Iron Ores, by F. G. Striberg in *Bihang till Jernkonterets Annaler*, 1902, pages 135–141.

(47) Iron Ore Concentration, by W. Peterson in *Teknisk Tidschrift*, vol. 32, page 147. Describes the development of the process in Sweden, and advocates the erection of a testing institution for ascertaining the most suitable methods of concentrating various kinds of iron ore.

(48) The Use of Magnetic Concentrates in the Port Henry Blast Furnaces, by N. M. Langdon in *Trans. A.I.M.E.*, vol. 20, 1891, page 599. Relates the experience of using magnetic concentrates in the blast furnace for two years. No more trouble was experienced than with lump ore. There is no difficulty in using concentrates up to 80 per cent. of the charge for the furnace, and the records show increased economy of fuel. A discussion on this subject is given in *Trans. A.I.M.E.*, vol. 20, page 575, where ironmasters give their views. The concensus of opinion favors the use of concentrates.

(49) The Use of Finely Divided Ore, by J. Wilborg in *Colliery Guardian*, Aug. 18, 1899. A paper read before the British Iron and Steel Institute, discussing the ways by which concentrated iron ore may be used.

(50) Rudolphs-Landin Process for Treating Fine Ores. Described in *Journal of Chemical Society* of Sweden, July, 1901. Describes a process of briquetting, etc.

(51) Use of Finely Divided Ores in Blast Furnaces. The practice at Pittsburg, Pa. is given in *Journal of Iron and Steel Institute*, vol. 2, 1890, page 73. The German practice is given in the same journal, vol. 2, 1890, page 49.

(52) Roasting of Pulverized Iron Ores and Manufacture of Briquettes, by T. Magnuson in *Jernkonteretes Annaler*, vol. 58, page 255–288.

(53) Process for Smelting Iron Ore in Fine State, by O. Daube in *Engineering and Mining Journal*, Oct. 4, 1902. Finely divided ore is mixed with coal dust and coked in a coking oven, producing a metallic sponge ready for the blast furnace. The coking takes 24 hours, the gases being used to heat the ovens, leaving a surplus.

(54) The New Advances in the Department of Magnetic Separation, read by F. O. Schnelle at a meeting of the Association for the Advancement of Industry (German), October 6, 1902. Describes the latest forms of the Wetherill separators and gives a discussion by German engineers.

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GEOLOGICAL MAP

OF

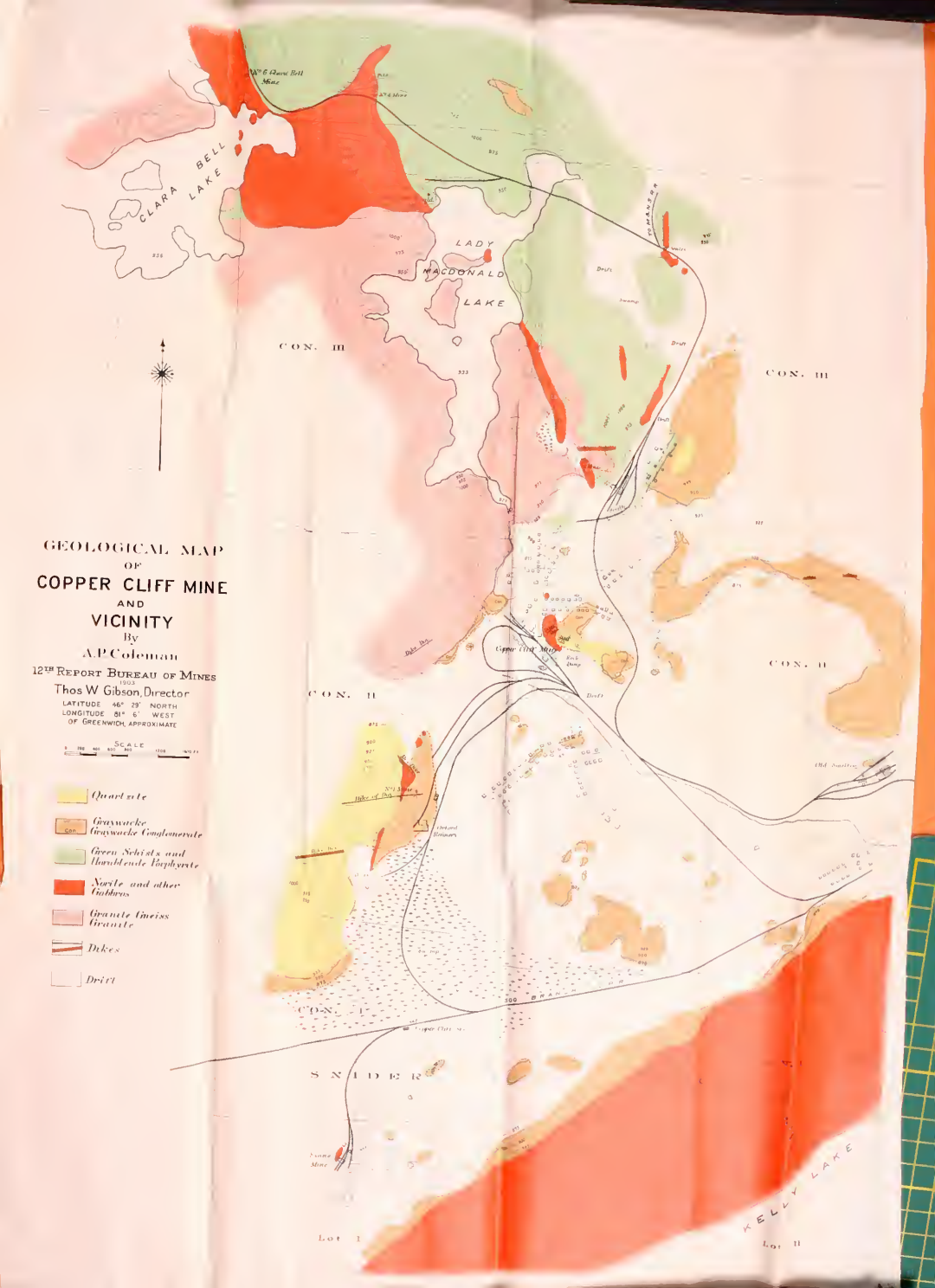
STOBIE AND FROOD NICKEL MINES

By

A. P. Coleman,

12th Report Bureau of Mines
1903
Thos W. Gibson Director

Scale


CLARA BELL LAKE
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Lot II
GEOLOGICAL MAP
OF
COPPER CLIFF MINE
AND
VICINITY
By
A.P. Coleman
12TH REPORT BUREAU OF MINES
1903
Thos W. Gibson, Director
LATITUDE 46° 29' NORTH
LONGITUDE 81° 5' WEST
OF GREENWICH, APPROXIMATE
SCALE
Quartzite
Greywacke
Greywacke Conglomerate
Green Schists and
Hornblende Porphyrite
Norite and other
Gabbros
Granite Gneiss
Granite
Dikes
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